Patients' Preferences for Shared Decision Making:

Associations with Demographic Variables, Personality Characteristics, and Characteristics of the Health Condition

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Shared Decision Making: “dancing, not wrestling”

(Cushing & Metcalfe, 2007, p. 1052)

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Contents

List of Tables

List of Figures

Abstract

Shared Decision Making (SDM) in medical consultations has received significant attention in the literature over the past 10 years. Research indicates that patients' desire both components of SDM, information sharing and behavioural involvement, to differing degrees (Flynn, Smith, & Vanness, 2006) and that matching medical care to these preferences may be associated with better patient health outcomes (Cvengros, Christensen, Cunningham, Hillis, & Kaboli, 2009). In this thesis, relationships between SDM preferences and patients' personal characteristics (demographic factors and personality attributes) were investigated (Objective one), as well as associations between patient's SDM preferences and the features of the health concern that they were seeking care for (Objective two). The current study used 158 Christchurch residents who were part of a longitudinal health and wellbeing study. They completed a questionnaire that measured their general SDM preferences, their demographic and personality characteristics and their preferences for SDM, given four hypothetical health complaints. These complaints varied in duration and perceived seriousness.

Demographic variables and personality variables accounted for approximately the same amount of variance in participants' general preferences for SDM, together describing 33% and 42% of the variance in information sharing and behavioural involvement. The strongest contributors were all three Health Locus of Control variables, sex and education level. Big Five personality traits and participant self-rated physical health did not account for a significant amount of variance in SDM preferences, once all variables were controlled for.

In addition, the features of the health concern were marginally associated with participants' SDM preferences for that specific consultation. Between-subjects analyses found that the duration or perceived seriousness of the health complaint were not associated with SDM preferences reported within the first scenario, once participants' general SDM preferences were accounted for. Whereas, these two features described a significant amount

of variance in participants' information sharing preferences in the within-subjects analyses, when participants' general SDM preferences were controlled for. Post-hoc analyses reported that chronic health complaints, that were perceived to be highly serious, elicited significantly greater preferences for information exchange than all other scenarios. No association occurred for participants' preferences for involvement in final decision making across the four scenarios.

The findings emphasise that differences occur in patients' preferences for information sharing and behavioural involvement; both in regard to their general preferences and their specific preferences for these components of SDM within a given consultation. They also identify the central role that patients' personality characteristics may play in determining their collaboration and involvement in healthcare; associations that are often overlooked by the SDM literature. The current findings contribute to our understanding of patient's preferences for SDM and implications for practice and future research are discussed.

Introduction

General practitioners (GPs) juggle many competing priorities when in consultations with patients (Vick & Scott, 1998). These may include building a strong relationship with the patient, keeping to time pressures and ensuring that their practice is evidence-based. As a result, GPs dynamically draw from the science of medicine, as well as the art of communication, in order to facilitate efficient and successful interactions with patients (Benzing, 1991).

Within all GP consultations, a number of decisions must be made. These may include determining what the patient's health problem is, who is in charge of the consultation and who is responsible for choosing treatment (Chewning & Sleath, 1996; Vertinsky, Thompson, & Uyeno, 1974). Throughout history, two differing approaches to decision making have occurred; paternalism and Shared Decision Making (SDM). These two perspectives are based on opposing models of health and illness, and they indicate that each party has differing degrees of responsibility and control within consultations (Karnielli-Millar & Eiskovits, 2009; Vertinsky et al., 1974).

Paternalism is where the doctor acts in the best interests of the patient by adopting the role of the expert (R.M. Kaplan & Frosch, 2005; S. K. Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009). These consultations are doctor-centred, with the GP having exclusive control over the consultation, and the patient remaining passive (Charles, Gafni, & Whelan, 1999; Murray, Charles, & Gafni, 2006). Patients simply report their symptoms and cooperate in their recovery, while the doctor performs all other tasks independently.

Paternalism has dominated the medical profession up until the end of the 20th century (Chewning & Sleath, 1996). It is based on the biomedical model of illness, which states that

disease is the result of cellular abnormalities. Although it is still relevant in many medical settings, this model has a number of shortfalls (Wade & Halligan, 2004). These include that it refers to the mind and body as separate entities, therefore the patient's personal characteristics or lifestyle are not considered in treatment. It assumes that health is the absence of illness, thereby preventative medicine is generally not considered. This model also views the patient as a victim of circumstance, who has little responsibility or control over their health (Wade & Halligan, 2004). These limitations were questioned heavily by society in the 1970s, thereby promoting the creation of a more collaborative model of medicine; the biopsychosocial model of health (Frosch & Kaplan, 1999; S. K. Smith et al., 2009). This model considers that psychosocial characteristics, such as an individual's mental state and lifestyle may interact with biological factors to influence health (Wade & Halligan, 2004). It considers that these factors may play an important role in treatment and that healthcare, as a result, should be patient-centred. Patient-centred care is described as healthcare that is driven by the patient's needs and preferences (Buetow, 1998; S. K. Smith et al., 2009). In this way, treatment is individually-tailored to the patient, with both parties collaborating to determine the problem and to choose the most appropriate treatment (R.M. Kaplan & Frosch, 2005). It is this collaborative process that is known as Shared Decision Making (SDM).

Charles, Gafni and Whelan (1997) define SDM within the literature. They describe that SDM requires both the patient and doctor to be fully involved in the consultation. This involvement must include a two-way sharing of medical and personal information, joint deliberation of treatment options, and a shared decision occurring regarding which treatment is best (Charles et al., 1997). Each party is considered an expert in their own field; with the doctor considered to be the medical expert and the patient as the expert on their own life, and

their preferences, needs, priorities and opinions are expressed during the consultation (Chewning & Sleath, 1996; Murray et al., 2006).

Patients' preferences for SDM can be understood in terms of two main components; information sharing and behavioural involvement (Sutherland, Llewellyn-Thomas, Lockwood, Tritchler, & Till, 1989). Information sharing has been described as the extent of information exchange desired by the patient, including their willingness to ask questions, provide information and deliberate over treatment options (Kiesler & Auerbach, 2006; Krantz, Baum, & Wideman, 1980). Patients' inquisitiveness and the degree that they would like to contribute to the consultation are captured within their information sharing preferences. Behavioural involvement preferences describe patients' willingness to make treatment decisions and to participate in their own treatment (Kiesler & Auerbach, 2006; Krantz et al., 1980). Motivation to take action is critical for this construct, as those with high preferences for behavioural involvement will have a strong desire to make final treatment decisions and to self-manage their health.

Shared Decision Making: Preferences and outcomes

Over the last 20 years, the SDM literature has attempted to find evidence to support widespread promotion and application of this approach. This research has typically focused on two areas of inquiry. The first poses whether individuals prefer SDM to an equal or greater extent than other forms of decision making. The principles of patient-centred care state that patients' preferences must drive the decision making models adopted by the medical profession. As a result, research must demonstrate that SDM is desired by the general public, in order for its promotion and application in medical settings to be supported. The second area of inquiry is whether SDM produces equal or better patient outcomes, compared with other decision making approaches. The medical profession is renowned for

maintaining evidence-based practice, where doctors choose techniques or treatments that will optimise patients' outcomes. In order for SDM to be supported by the literature, it must be shown to be equally or more effective than other models. These two areas of the literature are discussed the subsequent sections.

SDM preferences. Studies from across the world have measured SDM preferences within various samples (Nomura, Ohno, Fujinuma, & Ishikawa, 2007; Rudell, Myers, & Newman, 2006; Vick & Scott, 1998). Although figures as low as 14% (Baider, Ever-Hadani, & De-Nour, 1995) or as high as 97% (Keating, Guadagnoli, Landrum, Bardas, & Weeks, 2002) have been reported, most studies have found that 30% to 65% of people prefer an SDM approach (Cushing & Metcalfe, 2007; Flynn et al., 2006). This indicates that there is a large amount of variance across individuals' preferences for SDM.

The variance in these results may be accounted for by variety of reasons. Differing measures of SDM used across studies may have contributed to the variance in the results (Entwistle & Watt, 2006; Robinson & Thomson, 2001). Differing samples were also used across the research, with chronically ill or hospitalised samples (Keating et al., 2002; Strull, Lo, & Charles, 1984) typically having more variance in their SDM preferences than those who recruited from the general public (Murray, Pollack, White, & Lo, 2007). Individuals' preferences for information sharing and behavioural involvement may also produce variance. Studies have noted that although 92% to 96% of people wanted to exchange information with their GP (Flynn et al., 2006; Levinson, Kao, Kuby, & Thisted, 2005; S. K. Smith et al., 2009), approximately 52% to 75% preferred to leave the final treatment decision to their doctor (Degner & Sloan, 1992; Flynn et al., 2006; Levinson et al., 2005). Another factor, that could account for some the variance between studies, is the changing nature of society. SDM becoming increasingly desired by the public, with current SDM preferences significantly

greater than preferences measured 20 years ago (van den Brink-Muinen et al., 2006). Overall, it seems that there are many factors that may account for some of the variance in SDM preferences. However, it does seem that the majority of people prefer an SDM approach.

Patient outcomes from SDM. The efficacy of SDM in producing equal, if not better patient outcomes, in comparison to paternalistic approaches, is an area of contention within the literature. Some studies have found that SDM associated with better patient satisfaction, better patient adherence and better patient physical and mental health (Joosten et al., 2008; Michie, Miles, & Weinman, 2003), while others found no difference between doctor-directed and SDM consultations (Guadagnoli & Ward, 1998). Below is a brief review of the research in this area, including research that investigates SDM and patient satisfaction, treatment adherence, and physical and mental health outcomes. Consideration was also given to a small area of the literature that investigates the outcomes of matching medical care to patients' preferences for SDM.

The most frequently investigated patient outcome within the SDM literature is patient satisfaction (Joosten et al., 2008). Findings typically indicate that those receiving SDM care are significantly more satisfied than those receiving more directive consultations (Joosten et al., 2008; Kinmonth, Woodcock, Griffin, Spiegal, & Campbell, 1998; Maly, Bourque, & Engelhardt, 1999; Martin et al., 1998). However, meta-analyses have found this relationship to be inconsistent, with approximately 30% of studies finding insignificant results (Joosten et al., 2008; Lewin, Skena, Entwistle, M., & Dick, 2001; Michie et al., 2003). Similar inconsistencies have been found for the link between SDM and adherence to treatment. Approximately 80% of studies investigated within meta-analyses found that SDM associated with better patient adherence, with 20% finding insignificant results (Joosten et al., 2008;

Michie et al., 2003; S. M. Smith, Allwright, & O'Dowd, 2007). Some studies have stated that this relationship is evident when considering adherence to various types of treatment, including medication use, foot care in diabetes and psychiatric treatment for those with mental health issues (Heisler, Bouknight, Hayward, Smith, & Kerr, 2002; Ludman et al., 2003). Therefore, there seems to be a reasonable amount of evidence to suggest that SDM leads to equal, if not better, patient satisfaction and treatment adherence than paternalistic approaches.

The picture is less clear with respect to the link between SDM and physical health. Most meta-analyses reported inconclusive results (Lewin et al., 2001; Rao, Weinberger, & Kroenke, 2000; Stewart, 1995). However, there were some that found signficantly better physical health outcomes, including self-rated health and physiological measures, in patients who participated in SDM interventions, compared to those who recieved treatment as usual (Robert M. Kaplan, Greenfield, & Ware, 1989). Randomised controlled trials were generally unable to find any differences in outcomes between those who received SDM and those who received paternalism (Savage & Armstrong, 1990). Yet inconclusive findings occurred in cross-sectional studies which used patients with different health conditions, patients who had the same specific health condition, as well as studies that measured different physical health outcomes, such as time spent in hospital, analgesic use or the number of side effects experienced (Trummer, Mueller, Nowak, Stidl, & Pelikan, 2006; Ziemann & Dracup, 1990). It must be noted that no studies were identified that found worse physical health outcomes for patients who received SDM, compared to paternalistic consultations or treatment as usual. Therefore, although it remains unclear whether SDM produces significantly better physical health outcomes than paternalism, it seems that both decision making approaches may produce similar physical health outcomes.

The conclusions are somewhat clearer for the association between SDM and patients' mental health outcomes. Many studies reported better mental health outcomes, including less depression and anxiety for breast cancer patients who receive SDM care rather than treatment as usual (Fallowfield, Hall, Maguire, & Baum, 1990; Ong, Visser, Lammes, & de Haes, 2000; Pozo, Carver, Noriega, & al., 1992). SDM care has also been associated with better emotional wellbeing in diabetic patients, less anxiety in those seeking gynaecological care and less stress in chronic pain patients, in comparison to those receiving treatment as usual (Ballantyne, Carr, Chalmers, & al., 1993; Kinmonth et al., 1998; Thompson, Nanni, & Schwankovsky, 1990). For those with mental health issues, such as depression, better outcomes occurred when patients were provided with more opportunities to be involved in their care (Ludman et al., 2003; Von Korff et al., 2003). Moreover, the field of clinical psychology recognises that a collaborative working alliance, which shares many features of SDM, may account for up to 15% of the variance in patients' mental health outcomes (Norcross, 2011). Together, these results describe that SDM may be associated with positive patient mental health.

Finally, there is research that has attempted to determine if matching patient preferences for SDM with their preferred type of care produces better health outcomes than non-matched care. Findings from one study indicated that those who experienced mismatched consultations, particularly those who received less SDM than they preferred, reported lower satisfaction with care than those who experienced matching consultations (Cvengros et al., 2009; Kiesler & Auerbach, 2006; Krupat et al., 2000). These results suggest that providing too little SDM has more of a detrimental effect on patient satisfaction than providing too much SDM. Furthermore, Cvengros et al. (2009) found that their diabetic patients had

marginally better glycemic control when they were provided with the same amount of information sharing that they preferred. Patient satisfaction and adherence were also optimised when they received the same amount of behavioural involvement that they desired (Cvengros et al., 2009). Some have identified that inconcordant consultations may result in patients pursuing overly dominant or passive roles, in effort to remedy the discrepancy between what they prefer and what they are receiving (Street, 1991). Although more research is needed to corroborate these findings, they indicate that patient care that matches patients' SDM preferences may promote optimal health outcomes, including higher satisfaction, better adherence and possibly better physical health.

Summary. At present, the literature currently reports that there is some desire for SDM among the general public. Studies from across the world have found that approximately 30% to 65% of people reported a preference for SDM, with preferences for information sharing typically exceeding those for behavioural involvement. The literature also reports that SDM may be related with equal, if not better, patient health outcomes than paternalistic consultations (Cushing & Metcalfe, 2007; Flynn et al., 2006). This was found across a number of health outcomes, with stronger associations found between SDM and patients' mental health outcomes, than for other outcomes, including patient physical health, treatment adherence and satisfaction. Although meta-analyses typically found that the latter associations were small, some authors argue that the presence of a trend across studies, and the potential value that can be gained from optimising patient outcomes, even by small degrees, may justify the promotion of patient collaboration (Arbuthnott & Sharpe, 2009). Support was also found for matching patients' medical care to their preferences for SDM. This research indicated that matched care or providing too much SDM rather than too little, was associated with better patient health outcomes (Cvengros et al., 2009). Therefore, it appears that the research supports the application of SDM, as it finds evidence for both areas

of inquiry. It seems that the literature currently endorses the use of SDM, particularly in those whom desire it (Auerbach, 2000). Current global healthcare standards reflect this view, as they promote patient engagement and involvement across all forms of healthcare (Entwistle & Watt, 2006; Guadagnoli & Ward, 1998).

Associations between patient preferences for SDM and demographics, health status, and personality characteristics.

As shown earlier, a large amount variance occurs across individuals' preferences for SDM. Research reports that systematic differences may occur in patients' SDM preferences due to stable characteristics, such as the individual's demographics or personality. These discrepancies may account for some of the variance in their preferences for SDM. If such associations exist, then they may be used by medical professionals to better predict patient preferences, so that matching care can be provided. The following section reviews possible associations between patients' demographic characteristics, patient health status and personality characteristics that may explain some of the variance in their preferences for SDM.

Patient demographics and SDM preferences. Approximately 15% of the variance in SDM preferences has been accounted for by patient's demographic characteristics (Benbassat, Pilpel, & Tidhar, 1998; Ende, Kazis, Ash, & Moskowitz, 1989; Jung, Baerveldt, Olesen, Grol, & Wensing, 2003). Research has found that those who are younger, female, of higher socioeconomic status (SES), and those with higher education levels typically prefer more SDM than those who are older, male, lower in SES, and less educated (Arora & McHorney, 2000; Heisler et al., 2002; Say, Murtagh, & Thomson, 2006; Vertinsky et al., 1974; Vick & Scott, 1998; Wensing, Jung, Mainz, Olesen, & Grol, 1998). This trend occurred across studies, including those who use public or unwell samples and those based in different

countries. Each of these characteristics and their association with SDM are discussed in detail below.

The association between patient age and SDM preferences was the most replicated finding across the literature: almost all studies indicated that younger patients preferred more SDM than older patients (Say et al., 2006). For example, one study found that 87% of 20 to 39 year-olds preferred SDM, whereas only 51% of 40 to 60 year-olds shared the same preference (Cassileth, Zupkis, Sutton-Smith, & March, 1980). Another study found that, compared with those over the age of 75 years, those under 35 were 10.5 times more likely to prefer SDM, and those between 35 to 54 years old were four to five times more likely to prefer SDM (Arora & McHorney, 2000). It must be noted that lower preferences for SDM among older patients may be influenced by their worse health, greater number of chronic problems, and possibly by their traditional views of the medical profession (Beisecker & Beisecker, 1990; Robinson & Thomson, 2001).

Patients' SDM preferences also strongly associated with their level of education. Those with more years of education preferred more SDM than those with fewer years of education (Flynn et al., 2006; Say et al., 2006; S. K. Smith et al., 2009). Arora and McHorney (2000) found support for this, as they found that patients with a university degree were three times more likely to prefer SDM than those who left high school with minimum qualifications. It is thought that this association may occur as those who are highly educated may be more effective in expressing themselves, and they may be more confident in interacting actively with doctors and in weighing risks and benefits (Fan et al., 2004; Noerreslet, Jemec, & Traulsen, 2009; S. K. Smith et al., 2009; Street, 1991). Those who are

less educated or older may be intimidated by the complexity or uncertainty of problem solving, or they may fear making wrong decisions (Vick & Scott, 1998).

SDM preferences have also been associated with the sex of the patient. Most research indicated that females preferred more SDM than males (Arora & McHorney, 2000; Flynn et al., 2006; Say et al., 2006; Sekimoto et al., 2004; Vick & Scott, 1998). Some authors reported that this association may be a function of the patient's coping mechanisms, as females may become actively involved in consultations in order to cope with anxiety, whereas males are more likely to use avoidance strategies (Vertinsky et al., 1974).

Finally, associations between SDM preferences and SES were less consistent within the literature. Those with better occupations or higher household income preferred more SDM than those with lower incomes and occupations (Chewning & Sleath, 1996; Pendleton & House, 1984; Say et al., 2006). However, these associations typically did not reach statistical significance, as the age and education of the individual usually accounted for the majority of the variance in their SDM preferences (Say et al., 2006).

Despite repeated replication of associations between demographic variables and SDM preferences across studies, this research has paid little attention to the two components of SDM. Studies have reported that age and education level predicted patients' preferences for information sharing, whilst age, education, marital status and occupation predicted preferences for behavioural involvement (Ende et al., 1989). The findings from Vick and Scott (1998) refute this, as they found patients' education level was independent of patients' preferences for information sharing. These two studies indicate that information sharing and behavioural involvement preferences may be predicted by differing characteristics. This may

assist in explaining why preferences for these two components of SDM differ within typical samples (Flynn et al., 2006). Since the nature of these associations remains unclear within the literature, the aim of this study was to investigate associations between patients' preferences for information sharing and behavioural involvement and their demographic characteristics. It was expected that age would account for a significant amount of variance in participants' preferences for information sharing and behavioural involvement, whereas education may play more of a role in their preferences for information exchange, than for behavioural involvement.

Patient health status and SDM preferences. Studies have noted that the percentage of variance accounted for in patient's SDM preferences may be increased to 19%, if their current health status is considered alongside their demographic characteristics (Ende et al., 1989). As indicated earlier, SDM preferences have been found to differ across samples of varying health status. This research stated that 48% to 90% of those from primary medical settings or public samples preferred SDM (Levinson et al., 2005; Murray et al., 2007), whereas 22% to 86% of those with chronic conditions and 31% to 97% of cancer patients preferred this approach (Beach, Duggan, & Moore, 2007; Keating et al., 2002; Strull et al., 1984; Wallberg, 2000). This indicates that those who are healthy typically desire more SDM than those who are unwell, and that there may be more variance in SDM preferences in those who are unwell (Degner & Sloan, 1992; Pendleton & House, 1984; Robinson & Thomson, 2001; Vick & Scott, 1998). This trend was found across studies that used various measures of health, including number of prescription medications, number of health conditions, global measures of patient-rated health and patient's perceptions of the severity of their conditions (Arora & McHorney, 2000; Flynn et al., 2006). These studies also reported that patients' perceptions of their health were more strongly associated with their SDM preferences, compared with objective health measures (Fan et al., 2004).

Research has described that patients' preferences for information exchange may differ according to patient health. They noted that this difference may be reflected in the amount of information sharing they desire, as well as the topics that they wished to discuss within the consultation. Studies have found that relatively healthy patients preferred to receive information about their health problem, rather than about treatment, whereas those who were unwell preferred information about treatment, rather than information about their condition (Vick & Scott, 1998). In addition, studies that have used individuals with progressively-deteriorating conditions have found that they typically preferred doctors to adopt stronger roles in care as their condition worsened (Chewning & Sleath, 1996).

Mental health status may be less likely to associate with SDM preferences than physical health status. SDM has been found to be strongly desired in mental health samples, as well as in healthy samples (Patel, Bakken, & Ruland, 2008; Woltmann & Whitley, 2010). This universal endorsement of SDM across individuals with varying mental health may indicate that mental health should show no association with SDM preferences, due to it being desired by most.

The current study will investigate associations between participants' preferences for information sharing and behavioural involvement and their self-reported physical and mental health status. It was expected that patients' preferences for SDM would reflect those found in the literature; that those who were healthier would prefer more information sharing and possibly more behavioural involvement than those who were unhealthy. Less variance was expected regarding information sharing preferences, due to the differing topics that could be discussed, rather than the complete absence of information exchange. Meanwhile no

associations were expected between participants' self- rated mental health and their preferences for either form of SDM.

Personality characteristics and SDM preferences. Some of the variance in patient's decision making preferences may also be explained by their personality characteristics. Braman and Gomex (2004) have shown that personality characteristics may add between 9% to 20% to the variance already explained by demographic variables. Recently, the SDM literature has expanded in this direction to consider possible associations between various personality characteristics and patients' SDM preferences.

The personality characteristics that are of interest in the current study are Health Locus of Control and the Big Five. Both models are well-known within the health psychology literature, and they are often correlated with patient outcomes, including physical health and adherence (Braman & Gomez, 2004; Hashimoto & Fukuhara, 2004; Wiebe & Christensen, 1996). Their enduring and relatively stable nature may make them particularly useful in predicting future health outcomes and preferences (Wasylkiw & Fekken, 2002). To date, few studies have investigated associations between Health Locus of Control and the Big Five, and SDM preferences. Moreover, existing studies tend to examine only one personality variable at the time, excluding other components of the models (Ellington & Wiebe, 1999). This study aimed to investigate associations between all components of these personality characteristics and patients; SDM preferences, in order to determine the amount of variance they can account for.

Health Locus of Control and SDM preferences. Health Locus of Control (HLOC) has been described as the patient's perception of how much control that they, and others, have over their health (B. S. Wallston & Wallston, 1978). HLOC beliefs are typically measured across three dimensions: Internal HLOC, Chance HLOC and Powerful Others

HLOC (K. A. Wallston, Wallston, & DeVallis, 1978). Internal HLOC measures the degree of personal influence that patients believe they have over their health. Those who score high on Internal HLOC feel personally responsible for their health, and may attribute any changes in their health to their own actions. Chance HLOC measures the degree to which patients attribute their health to chance, luck or fate, with those who score high on this dimension commonly believing that there is little that can be done for their health (K. A. Wallston et al., 1978). Finally, Powerful Others HLOC measures the extent to which patients attribute their health to others in powerful positions, such as their GP (K. A. Wallston et al., 1978).GPs may be perceived as powerful, due to their extensive medical expertise and perceived ability to control disease. Patients who score high on Powerful Others HLOC may expect that doctors are able to influence their health. In this way, the three HLOC beliefs describe the patients' expectations of the controllability of their health.

These three HLOC beliefs have been found to be associated with patients' attitudes to seeking care (K. A. Wallston et al., 1983). The strongest and most consistent association reported in the literature was the negative association between participants' Powerful Others HLOC beliefs and their preferences for behavioural involvement. Wallston and colleagues (1983) found significant correlations of -0.34 to -0.66 between participants' Powerful Others HLOC beliefs and their preferences for involvement in care across their four studies. These studies included samples recruited from churches, GP clinics, antenatal classes, community groups and war veteran outpatient clinics (K. A. Wallston et al., 1983). Other research also found significant negative associations with behavioural involvement measures using community samples (Braman & Gomez, 2004; Hashimoto & Fukuhara, 2004). Braman and Gomez (2004) found a large association between participants' Powerful Others beliefs and their preferences for behavioural involvement, which remained significant after demographic

variables were controlled for. Statistical control of demographic variables is important, as HLOC is strongly associated with age and education level (Braman & Gomez, 2004). The presence of this association after controlling for demographic variables indicated that personality variables may have predictive power for individuals' SDM preferences, over and above demographic characteristics.

Research indicates that are weaker between participants' preferences for information sharing and their Powerful Others HLOC beliefs. Correlations ranged between -0.18 and -0.46 (all $p < .01$) in the four studies by Wallston and colleagues (1983), whereas others found smaller, non-significant associations between these variables (Braman & Gomez, 2004). Mixed findings also occurred for associations between Internal HLOC, Chance HLOC and participants' SDM preferences. Wallston and colleagues (1983) reported that associations between Internal HLOC and SDM preferences ranged from 0.08 to 0.44, with six out of the eight correlations being statistically significant. Chance HLOC had the weakest associations with participants' SDM preferences, with correlations between -0.05 to -0.25 and only three out of eight of these relationships were significant. No differences occurred between these HLOC constructs and participants' preferences for information sharing or behavioural involvement. Studies did note that Internal HLOC beliefs were positively related to information seeking behaviours (K. A. Wallston, Maides, & Wallston, 1976). They stated that those with high Internal HLOC beliefs had more knowledge about their health condition, asked more questions during the consultations, had better adherence to medications and participated more in health maintenance behaviours, such as maintaining a diet or giving up smoking (Krantz et al., 1980; B. S. Wallston & Wallston, 1978). However these behaviours may not necessarily be indicative of participants' preferences for care.

Overall, the HLOC findings indicated that Chance HLOC beliefs were unlikely to be associated with participants SDM preferences, whereas Internal HLOC beliefs may be. The current study attempted to explore these possible associations between SDM preferences, Internal HLOC and Chance HLOC, and also replicate the associations found between Powerful Others HLOC.

Big Five personality traits and SDM preferences. The Big Five may also correlate with individuals' SDM preferences. This model is the most widely used classification of personality and it has five dimensional factors: Neuroticism, Conscientiousness, Extroversion, Agreeableness, and Openness (Goldberg, 1990). These traits, particularly Neuroticism and Conscientiousness, have been found to be associated with individuals' performance of health behaviours, adoption of the sick-role and physician utilization (Booth-Kewley & Vickers, 1994; Korotkov & Hannah, 2004). Studies have found that the Big Five traits have been associated, and in some cases were found to predict, patient health status and outcomes (Korotkov & Hannah, 2004; Marshall, Wortman, Vickers, Kusulas, & Hervig, 1994), with one study reporting that, when measured in childhood, this model successfully predicted later adult physical health (Hampson, Goldberg, Vogt, & Dubanoski, 2006). Furthermore, these traits have been found to be independent of each other and independent from Health Locus of Control variables (Goldberg, 1990; Kardum & Hudek-Knezevic, 2012). It is possible that the inclusion of this model to the current research may help to explain the additional variance in SDM preferences.

The traits within the Big Five are considered to describe independent, longstanding features of personality that may represent individual differences within our community. An individual may fall anywhere on the continuum of each trait, so that the possible combination of all five traits may be infinite (Goldberg, 1990). In order to understand how differing degrees of each trait may relate with SDM preferences, the definitions of the five traits are

described below. These definitions are then used produce hypotheses for the current research, as there is a scarcity of studies investigating the components of the Big Five and their association with patients' preferences for SDM.

The first trait to be defined is Neuroticism. Neuroticism describes individuals who have a tendency to express emotional distress (Marshall et al., 1994). Those who score high on this construct may present as inhibited, anxious, self-conscious and vulnerable to stress (Conner-Smith & Flachsbart, 2007). Those who score low on Neuroticism demonstrate emotional stability and may have better resistance to, or acceptance of, stress. Neuroticism has been linked to a wide variety of health outcomes and behaviours, including greater risk of death from cardiovascular disease (Shipley, Weiss, Der, Taylor, & Deary, 2007), as well as more doctor visits and a more reported symptoms for those who score high on this construct (Korotkov & Hannah, 2004).

Given the highly stressed and anxious nature of those with high Neuroticism, it would be understandable to find that these individuals may have strong preferences for SDM, particularly information sharing. Information exchange within the consultation may provide these individuals with the opportunity to receive information, support and reassurance form their doctor, as well as to express their concerns. In this way, the stress-relieving qualities of this information sharing process may be preferred by those who are highly neurotic, compared to those who score low on Neuroticism (Conner-Smith & Flachsbart, 2007). However, it must also be considered that some highly neurotic individuals may prefer to disengage with their stress through avoidance, rather than actively approaching the situation (Conner-Smith & Flachsbart, 2007). This indicates that, for some, a negative correlation may occur between information sharing and neuroticism, whereas a positive correlation may occur for others.

One study was found that specifically looked at the association between SDM preferences and Neuroticism, ignoring all other components of the Big Five. Ellington and Wiebe (1999) used a sample of severely ill individuals and found support for a positive association between neuroticism and information sharing. They found that those who were highly neurotic preferred more information exchange than those who had low Neuroticism scores. In addition, they found no association between Neuroticism and participants' behavioural involvement preferences. Due to the severely ill sample used by this study, it was unclear whether these results would generalise to the current study. It seemed that an association in either direction or a lack of association between these variables may be able to be explained.

Conscientiousness describes proactive, self-disciplined individuals that are persistent, industrious and well-organised (Marshall et al., 1994; Soto & John, 2008). These individuals demonstrate high motivation for goal-directed behaviour, self-regulation and impulse control, along with a strong orientation toward achievement (Conner-Smith & Flachsbart, 2007). Those who score low on Conscientiousness may be described as laidback, easy-going and less exacting with themselves. Health research has found that this trait was most strongly associated with participation in health behaviours (Booth-Kewley & Vickers, 1994), with findings reporting that Conscientiousness was related to better medication adherence, less risk taking and greater performance of wellness behaviours (Wiebe & Christensen, 1996).

The organised, proactive and detail-orientated nature of Conscientious individuals may go hand-in-hand with higher SDM preferences, compared to those with low conscientiousness scores. This may occur for their preferences of information sharing and behavioural involvement, as these individuals may desire involvement across all elements of

the consultation. Those who score low in Conscientiousness may lack the motivation to pursue their health concerns in an active way.

Extroversion is defined within the literature as the disposition toward positive emotions and sociability (Marshall et al., 1994). It describes those who are generally outgoing and optimistic, with high activity levels (Conner-Smith & Flachsbart, 2007). These individuals are highly sociable, enthusiastic and typically have good leadership skills (DeYoung, Quilty, & Peterson, 2007; Soto & John, 2008). Meanwhile, those with low Extroversion scores, otherwise referred to as "introverted" individuals, are generally withdrawn and prefer their own company. These individuals may find social gatherings overly simulating, whereas extroverts may find solitary activities under stimulating.

In terms of possible associations with SDM, extroverted individuals may prefer greater amounts of information exchange than introverts, due to social interaction required by this task. Introverts may struggle with some of the complex processes that may occur in information sharing, such as deliberating over treatment options, whereas extroverts may find themselves more at ease in these situations. No specific hypotheses can be given regarding associations between Extroversion and behavioural involvement, as having an internal or external orientation to the world seems unlikely to associate with a greater preference for involvement in health.

The next trait, Agreeableness, describes those whom have the inclination toward interpersonal trust and the consideration of others (Marshall et al., 1994). They are typically described as tender-minded, altruistic and compliant, whereas those who score low on this construct may be described as cynical, hostile and intolerant of others (Booth-Kewley & Vickers, 1994; Conner-Smith & Flachsbart, 2007). As with Neuroticism, it seems that

association between Agreeableness and SDM could go either way or may not be present at all. Although highly agreeable individuals may form good rapport with others, they may be hesitant to disagree with others and may choose to accept the opinions of others over their own (Cuperman & Ickes, 2009; Soto & John, 2008). This may indicate that a relationship may not occur with information sharing. It also suggests that highly agreeable individuals may defer responsibility for final treatment decisions to their GP, which may mean that they have low preferences for behavioural involvement. Therefore, any associations between Agreeableness and SDM are currently unclear.

The last trait to be defined within the current research is Openness, otherwise referred to as intellect. This describes those who are receptive to ideas and experiences in life. Those who score high on Openness may be involved in a range of intellectual interests and are typically curious, creative, and flexible (Conner-Smith & Flachsbart, 2007). An individual that receives a low Openness score may seem close-minded or may be unreceptive to alternative ideas and experiences.

The curious and receptive dispositions of those with high Openness scores indicate that these individuals may prefer more information sharing than those who report little openness. These individuals may use medical consultations as an educational resource, and they may be more likely to adopt the collaborative approach of SDM. Higher levels of Openness may also be expected to associate with greater SDM preferences, as openness has been found to be strongly associated with education level (Arora & McHorney, 2000; Flynn et al., 2006; S. H. Kaplan, Gandek, Greenfield, Rogers, & Ware, 1995). No clear associations can be inferred between Openness and behavioural involvement. It is possible that these individuals may respond better to changing treatments; however they be no more or less likely desire responsibility for treatment or to participation in care.

Only one study could be found that investigated associations between all components of the Big Five and participants' SDM preferences. Auerbach and Pegg (2002) asked a sample of university students to complete a measure of the Big Five and also to report their preferences for SDM. They found that Openness to experience was the largest contributor to SDM preferences, for both information sharing and behavioural involvement. Extroversion, Agreeableness and Conscientiousness were also positively associated with participants' information sharing preferences, whereas Neuroticism was negatively associated with information sharing. These results are in-line with the definitions above, as well as the findings of Ellington and Wiebe's (1999) study of Neuroticism. However, the correlational nature of Ellington and Wiebe's (1999) study meant that it did not control for the influence of other variables, such as demographic variables. In addition, their particularly young and well-educated sample may influence the generalizability of their results to the community.

Objective One. The present research investigated associations between patient preferences for SDM and patient demographic variables, health status, and personality characteristics (i.e., HLOC and components of the Big Five), in a community sample from Christchurch, New Zealand. The relationship between demographics, health status and both aspects of SDM was examined, with the expectation that previous findings should be replicated within this research. Associations between personality variables, namely health locus of control and the Big Five, and both aspects of SDM were also explored within the current study. In terms of HLOC and Neuroticism, the findings were expected to be similar to those found in previous research. Findings for the possible associations with the other variables of the Big Five remained unclear and were to be investigated.

After these associations were explored, all variables that significantly correlated with SDM preferences were included in hierarchical regression models; one for information sharing preferences and the other for behavioural involvement preferences. These models determined the amount of variance that the demographic and personality variables could account for. Previous research indicated that patients' demographic variables and personality characteristics, including HLOC, may describe up to 40% of the variance in patients' SDM preferences (Braman & Gomez, 2004). It was expected that the current study may be able to account for a similar amount of variance within SDM preferences.

SDM preferences for specific health complaints

So far, this introduction has discussed a number of stable patient characteristics that may influence SDM preferences. However, SDM preferences may also be influenced by situational characteristics, such as the type of problem the patient is seeking care for (Florin, Ehrenberg, & Ehnfors, 2008; Flynn et al., 2006; Garfield, Smith, Francis, & Chalmers, 2007; Joosten et al., 2008). Indeed, the literature has shown that SDM preferences may not necessarily remain stable across different consultations or different health complaints (Bruera, Sweeney, Calder, Palmer, & Benisch-Tolley, 2001; Butow, Maclean, Dunn, Tattersall, & Boyer, 1997). The current study investigated possible associations between specific features of the patient's current health concern, including its duration and its perceived seriousness, and the patients' preferences for SDM within that specific consultation.

Research has found that the duration or course of the health concern may influence patient's preferences for SDM. In general, patients with chronic health complaints have been found to desire more active roles in consultations, compared to those experiencing acute

complaints (Flynn et al., 2006; Joosten et al., 2008). This finding may be attributable to the opposing characteristics of these complaints. Acute health complaints appear rapidly and are often fully resolved within a short period, whereas chronic health complaints typically occur over an extended period and have a fluctuating or worsening course. These differences have implications for medical care that individuals receive. The care of acute health complaints may require one or two GP consultations, whereas those with chronic complaints experience repeated opportunities for personal involvement due to on-going health evaluations and required lifestyle changes (Joosten et al., 2008). It seems that nature of chronic conditions may require the patient to take a more active approach to their health.

The literature also identified that patients' preferences within care may vary according to the type of symptoms that the patients experience. Patients with asymptomatic chronic conditions, such as hypertension and diabetes, have been found to prefer less behavioural involvement than patients with highly symptomatic physical health problems, such as arthritis or multiple sclerosis (Garfield et al., 2007; Hamann et al., 2007). Others have stated that these associations were curvilinear, as too many physically impairing symptoms, as in life-threatening or emergency situations, or too few noticeable symptoms may result in patients preferring to adopt a passive role (Chewning & Sleath, 1996; Robinson & Thomson, 2001). Therefore the nature of the patients' symptoms may have differing influences on their SDM preferences.

The research has indicated that patients' perceptions of their condition, particularly the seriousness of the health concern, may associate with their preferences for SDM. Research has repeatedly found that patients' perceptions of their health independently predict patient health outcomes, including patient mortality and functional limitations, even when objective health measures were controlled for (Idler, Russell, & Davis, 2000). However, few

studies have directly measured how patients' perceptions of their health concern may relate to SDM preferences. Of course, those who are experiencing serious health conditions, as measured objectively, may be more likely to perceive their health concern as highly serious, compared to those experiencing non-serious complaints. Therefore, hypotheses about possible associations between SDM preferences and subjective seriousness may be formed from research that has investigated patients' SDM preferences according to the objective seriousness of a health concern that they are seeking care for.

The majority of studies that have investigated the association between SDM preferences and the objective seriousness of the health concern have found that highly serious conditions evoke passivity from patients (A. Robinson & Thomson, 2001). Beaver and colleagues (1996) found that women who had been newly diagnosed with breast cancer preferred to adopt more passive roles in consultations than patients who had benign breast lumps. Winefield, Murrell, Clifford and Farmer (1995) also found this trend, although they stated that the relationship was curvilinear. They indicated that those who sought care for overly complex or overly simple problems preferred less SDM, compared to those seeking care for moderate health issues. Research investigating those experiencing life-threatening, degenerative or severe conditions also supported this association, as these studies reported lower SDM preferences compared to those who used healthy individuals (Arora & McHorney, 2000; Chewning & Sleath, 1996; Robinson & Thomson, 2001; Say et al., 2006). Overall, these results indicate that those with highly serious conditions may have little desire for SDM. It is possible that this association may also translate to those who perceive their health concern to be overly serious and may occur across their preferences for information sharing and behavioural involvement.

The research that investigates associations between differing characteristics of a health concern and patients' SDM preferences for that specific consultations require individuals to have a varying health status. This can be achieved in two ways. Either patients with varying health complaints are recruited or hypothetical scenarios are used to manipulate the health concern that patients are "experiencing". Hypothetical scenarios have received some criticism within the literature due to their obvious methods of manipulation (Clark, Potter, & McKinlay, 1991); however they may be useful in manipulating specific features of the patient's health concern whilst keeping all others the same. Within the SDM literature, three studies have used hypothetical scenarios to test patient preferences across differing health complaints. These have been reviewed below, with specific attention given to results that may implicate the duration of the health concern or the patient's perceptions of its seriousness.

The first study to be described was completed by Ende, Kazis, Ash and Moskowitrz (1989). They used three vignettes that described different health complaints to patients and then measured their preferences for SDM within that specific consultation. The health complaints included a respiratory tract infection, hypertension and severe chest pain. The authors identified that these complaints to represented a mild, moderate and severe or threatening disease, respectively. Significant differences occurred in participants' SDM preferences across all of the scenarios. The least SDM was desired within the severe chest pain scenario and the most SDM was desired for the respiratory infection. These results reflect those described above, in that the greater the seriousness of the condition, the less SDM desired. However, as with the other research that has investigated the seriousness of the health concern, this study specifically looked at the objective seriousness of the condition and did not measure participants' perceptions.

The second study to be described used video vignettes to measure participants' SDM preferences. McKinstry (2000) presented participants with videos of shared consultations and directed consultations for each of their five health complaints. These complaints included a sprained calf, a bleeding mole, unresponsive arthritis, depression and smoking. The authors identified that these health problems represented a minor acute concern, a serious acute concern, a chronic concern, a mental health concern and a lifestyle choice. Therefore this study measured both the course of the condition, as well as the objective seriousness of the concern. After watching the videos, participants rated which consultation they preferred. The least amount of support for SDM occurred in the sprained calf scenario, with only 15% of participants preferring the shared consultation. Shared approaches were preferred by 35% to 40% of the sample for the bleeding mole and arthritis scenarios, whereas 50% or more of participants preferred the shared approach in smoking or depression consultations. These results indicated that more SDM was elicited by health complaints that were chronic or were related to mental health or lifestyle changes. In addition, the results also described that greater SDM preferences occurred for acute serious complaints, than for minor acute health complaints. Note that this appears to be contrary to other research findings, which state that less SDM is preferred for serious health complaints.

The third and final study to be mentioned investigated SDM preferences within a Japanese sample. Sekimoto and colleagues (2004) used written vignettes that described pneumonia, gangrene and cancer. Once participants read each scenario, they rated the degree of involvement they desired within each consultation. The authors noted that cancer was expected to be the most serious of all the health complaints, although the other two complaints were specifically chosen to represent serious health issues. No statistically

significant differences were found across the scenarios; however the results displayed a similar trend to previous research. They found that 75%, 70% and 68% of participants preferred a collaborative consultation for the pneumonia, gangrene and cancer scenarios, respectively. Passive consultations were preferred by 11%, 14% and 25% of participants, for the respective health complaints. This indicated that less SDM was preferred within the highly serious scenario, compared to the SDM preferences for the other two acute health complaints.

Research that has used hypothetical scenarios has indicated that differences may occur in the preferences that patients may hold for their involvement in healthcare, according to the type of health concern that they are seeking help for. It seems that duration and seriousness may be implicated in this process, however research has yet to explore these variables in detail. In particular, studies typically assume that the objective seriousness may be indicative of patient's perceptions of the seriousness of their concern. However, studies indicate that patient's perceptions of their health may not always associate with objective health measures (Idler et al., 2000).

Objective Two. The current study used hypothetical scenarios to investigate whether the features of a specific health concern were associated with participants' SDM preferences for that specific consultation. The duration of the health problem (acute or chronic) and the perceived seriousness of the health concern (serious or not very serious) were manipulated within the scenarios, with participants completing four scenarios in total. After reading each scenario, participants reported their preferences for information sharing and behavioural involvement for that specific consultation.

According to the findings of the previous research, it was expected that conditions that were chronic, rather than acute, would provoke higher SDM preferences (Flynn et al., 2006; Joosten et al., 2008). Conditions that were perceived to be very serious were also expected to elicit lower preferences for SDM, than conditions that were perceived as not very serious. McKinstry's (2000) findings also indicate that greater SDM may be preferred for acute complaints that were perceived as serious, compared to complaints not perceived as serious, as found by. Possible interactions between the duration and perceived seriousness of the health concern will also be explored.

Method

Data Source

Between April and December of 2007 (Time 1), 358 adults from Christchurch or the surrounding region were recruited by pamphlet drop to participate in a cross-sectional study on health and well-being. Twelve to 18 months later (December 2008) they completed a second questionnaire (Time 2), and in July of 2010, they completed a third questionnaire (Time 3). All questionnaires used in this longitudinal research project were approved by the University of Canterbury Human Ethics Committee (see Appendices D and E).

Of the 358 participants who completed Time 1 questionnaires, 244 (68%) completed Time 2 questionnaires. Thirteen percent (N = 48) had indicated at Time 1 that they did not want to participate in future research, hence they were not approached for Time 2. The remaining 18% (N = 66) of participants did not return their Time 2 questionnaires. All participants who completed Time 2 questionnaires gave their consent to be contacted for future research. In July 2010 (Time 3), these participants were contacted by me to complete a follow-up questionnaire that contained the measures used for this thesis.

Time 3 Procedure

In July 2010, a Time 3 questionnaire was sent to 200 participants, and of these, 170 were completed and returned (an 85% response rate). Participants who were over 75 years old, those who had previously indicated that their address might change in the future, and those who were known to have a chronic health condition, were contacted by telephone to confirm their address details and willingness to participate (N = 75). The information sheet and consent form for this questionnaire is provided in Appendix A.

A total of 55 participants from Time 2 were not sent questionnaires at Time 3: one declined to participate when contacted by phone, 20 had inactive or incorrect details when contact was

attempted, and 24 were excluded due to an administration error. All participants who returned questionnaires were offered the choice of a $10 petrol or mall voucher or they could go in to a draw to win a $100 mall voucher (chances of winning were 1 in 10).

Participants

The present study is based on 158 of the 170 participants who completed Time 3 questionnaires. Of those received, 12 were excluded as they were completed in the weeks following the Christchurch 7.1 magnitude earthquake on September 4th 2010. These participants showed significantly worse mental health (M = 3.64) than did those who returned their questionnaire before the earthquake (M = 4.16), t (170) = 2.34, $p < .05$, which was likely to produce uncontrolled effects within the study. As a result, their responses were removed from the dataset.

Demographic characteristics of participants at Time 1 are shown in Table 1. Participants tended to be female, NZ European, married, well educated, employed and had a median income of $41 000 to $60 000 a year. Marital status, education, household annual income and ethnicity in the sample were representative of regional statistics; as reported by Statistics New Zealand (2006). However sex and age were not representative, as only a quarter of the sample were male, and half the participants were between the ages of 46 and 68 years.

Table 1. *Demographic Variables at Time 1*

	M/ *n*	*SD*/ %
Age	53.16	(15.86)
Sex		
Female	117	(74.05%)
Male	41	(25.94%)
Education [a]	5.61	(2.76)
Marital Status		
Married/ De facto	94	(59.50%)
Not married [b]	64	(40.51%)
Employment		
Full time work	50	(31.60%)
Retired	40	(25.30%)
Part time work	39	(24.70%)
Home maker	17	(10.80%)
Part or Full time student	14	(8.86%)
Other	8	(5.10%)
Disability benefit	8	(5.10%)
Unemployed	1	(0.60%)
Income		
0-20 000	24	(15.19%)
21 000 – 40 000	26	(16.46%)
41 000-60 000	18	(11.39%)
61 000 – 80 000	30	(18.99%)
81 000 – 100 000	17	(10.76%)
+100 000	40	(25.31%)
Missing values	3	
Ethnicity*		
NZ European	144	(91.14%)
Other	14	(8.86%)

Note. Mean (SD) or number of cases (%) are presented.
[a] Education was on a 9 point scale, with higher scores indicating higher education
[b] The "Not married" category included widowed, divorced, separated, never married or in a romantic relationship but not (yet) living together.

When comparing the demographic characteristics of those who completed only the Time 1 questionnaire (N = 188) to those who completed all three measures (N = 158), there was some evidence of selective attrition. Participants who completed only the Time 1 questionnaire were younger (M = 45.42) than those who completed all measures (M = 53.33), t (343.87) = 4.26, $p < .001$. However, the ratio of females to males in this study remained stable through time, as 35% of those who completed only the Time 1 measure were male, compared to 25.95% of those who completed all measures. These percentages were not significantly different, χ^2 (N = 347, df = 1) = 3.51, *ns,* which suggests that the poor representation of males in the sample was the result of recruitment, and not selective attrition.

Education and household income did not differ significantly between those who completed only Time 1 (M =5.84 and 3.60, respectively) and those who completed all three measures (M =5.61 and 3.71), t (344) = 0.76, *n.s.*, t (338) = 0.57, *n.s*. These groups also did not differ in regard to marital status, as those who completed all questionnaires were no more likely to be married (58.51%) than those who completed all measures (59.50%), χ^2 (N = 347, df = 1) = 0.124, *n.s*.

Measures

The Time 3 questionnaire assessed: participants' physical and mental health, their Health Locus of Control characteristics, participants' general SDM preferences regarding medical care, and participants' SDM preferences for four specific hypothetical health complaints (shown in Appendices B and C). The Big Five personality factors were assessed at Time 2. The measures are described in detail below.

Health status.

Physical and mental health. The Short Form Health Survey (SF-12) was used to assess participants' perceived health (Jenkinson et al., 1997; Ware, Kosinski, & Keller, 1996). This measure comprises two components: a physical health component (i.e. "In general, how would you say your health is at present?" and "During the past four weeks, how much did pain interfere with your normal work?)) and a mental health component (i.e. "How much of the time during the past week have you felt downhearted and depressed?" and "How much of the time during the past week have you felt calm and peaceful?"). Items are measured using different rating scales which were all transferred to 5-point scales. Higher scores on these scales represented better physical or mental health.

As shown in

Table 2, the scores for physical and mental health were skewed, with most scores reflecting good health. Previous research has found the SF-12 to be an appropriate, reliable, valid and practical measure of both mental and physical health (Gandek et al., 1998; Jenkinson et al., 1997; Ware et al., 1996). Summary scores for the SF-12 were good predictors of the original SF-36 scores and this measure has been validated in a variety of populations (Gandek et al., 1998; Ware et al., 1996).

Table 2. *Descriptive Data for Health Status Variables*

	M/ *n*	*SD*/ %	Cronbach's α
Health Status [a]			
Physical Health	4.19	(0.84)	.87
Mental Health	4.16	(0.59)	.84

Note. Means (SD) or numbers of cases (%) are presented.
[a] Health status was measured on a 5 point scale, with high scores representing good health.

Personality characteristics.

Health Locus of Control. The Multidimensional Health Locus of Control Scale (Form A) is an 18 item survey that contains 3 subscales that measure control variables, in regard to participants' health. These are: Internal Health Locus of Control (HLOC), Chance HLOC and Powerful Others HLOC (K. A. Wallston et al., 1976; K. A. Wallston et al., 1978). Internal HLOC is measured by items such as "If I get sick, it is my own behaviour which determines how soon I will get well again" and "The main thing which affects my health is what I myself do" (K. A. Wallston et al., 1978). Chance HLOC items include statements such as "No matter what I do, if I'm going to get sick, I will get sick" and "Most things that affect my health happen to me by accident" (K. A. Wallston et al., 1978). Finally, Powerful Others HLOC is measured by items such as "Having regular contact with my physician is the best way for me to avoid illness" and "When I recover from an illness, its usually because other people (for example, doctors, nurses, family and friends) have been taking good care of me". As with earlier measures, participants rated the extent to which they agreed with each statement on a 5-point scale. Higher scores indicated greater control.

Table 3 shows that participants reported greater Internal control beliefs regarding their health, compared with their beliefs regarding the influence of Chance or Powerful Others. Reliabilities of all three subscales were within acceptable levels (Braman & Gomez, 2004).

Big Five personality factors. At Time 2, participants completed a 25 item version of the Big Five Inventory. This measure was based on the 44 item version, which is a widely known and validated scale (John & Srivastava, 1999). Items consisted of statements that introduced traits, and participants rated the degree to which they felt the trait applied to them,

on a 5-point scale. As with all other measures, higher scores reflected more of that specific trait.

Within this measure, there were five subscales measuring each of the Big Five personality traits: Openness; Conscientiousness; Extroversion; Agreeableness and Neuroticism (DeYoung et al., 2007; John & Srivastava, 1999; Soto & John, 2008). Openness was measured by items such as "Is original, comes up with new ideas", and "Has an active imagination" while conscientiousness had items such as "Does a thorough job" and "Tends to be disorganised", with scores from the latter needing to be reversed. Extroversion was represented by items such as "Is talkative" and "Generates a lot of enthusiasm" while Agreeableness items included "Tends to find fault with others" and "Starts quarrels with others". Finally, Neuroticism was measured with items such as "Is depressed, blue" and "Is relaxed, handles stress well", with scores for the latter needing to be reversed. All scales, excluding openness, contained some reverse scored items.

Table 3. *Descriptive Statistics for Personality Variables*

	M	*SD*	Cronbach's α
Heath Locus of Control			
Internal LOC	3.51	(0.57)	.70
Chance LOC	2.45	(0.60)	.68
Powerful others LOC	2.35	(0.59)	.69
Big Five Inventory			
Openness	3.61	(0.71)	.82
Conscientiousness	4.00	(0.60)	.71
Extroversion	3.17	(0.83)	.86
Agreeableness	2.20	(0.58)	.63
Neuroticism	2.76	(0.73)	.77

The descriptive statistics for all five scales are shown in Table 3. The trait that was most prevalent within the sample was Conscientiousness, whilst the least prevalent trait was

Agreeableness. Most variables showed acceptable internal reliability, achieving Cronbach's alphas of over .70. Agreeableness had a Cronbach's alpha of .63, which is reflective of previous research that has found that this trait typically has marginal reliability compared to the other factors (Cuperman & Ickes, 2009).

SDM preferences. Participants' general preferences for SDM were measured using items from two measures: the Krantz Health Opinion Survey (KHO) and the Patient Practitioner Orientation Scale (PPO). The KHO contains 16 items measuring two subscales; seven items for information sharing and nine for behavioural involvement (Krantz et al., 1980) . It has been used by Braman and Gomez (2004), as well as Cvengros and colleagues (2009) in their research on general SDM preferences. These studies found that this scale had good reliability and validity. The PPO was also used by Cvengros and colleagues (2009), as well by Krupat and colleagues (2000) in their research investigating concordant consultations and patient satisfaction. The PPO conceptualises SDM in "sharing" and "caring" subscales, both of which appear similar to the subscales of the KHO (Cvengros et al., 2009). This measure has 18 items in total, 9 which reflect sharing and 9 for caring. It has similar validity and reliability to the KHO, with the caring subscale having slightly lower reliability than the sharing subscale (Krupat et al., 2000).

A combination of items from both measures was chosen in order to capture the most important aspects of SDM, with repetitive or overlapping items not included. A total of five items were from the PPO and 11 from the KHO formed the new measure. Participants rated the extent that they agreed with each statement using a 5-point scale, with higher scores representing greater desire for SDM.

A factor analysis with varimax rotation was used to examine the underlying structure of this measure (see Table 4). A two-factor solution was revealed (based on the scree test), with 59% of the variance explained by the two factors, labelled "Information Sharing" and "Behavioural Involvement". In most cases, items had factor loadings of at least 0.40 on to their original equivalent in the KHO or PPO. Items 12 and 15 loaded high on both factors, however their original equivalent received a substantially higher loading. These two items were considered to remain representative of behavioural involvement and information sharing respectively. Items 7, 13 and 16 were reclassified or removed from analyses due to their poor performance. Item 13 loaded highest on the "Information sharing" subscale although this item had been conceptualised in the PPO as "caring" (behavioural component). Due to this, this item was included as an "Information sharing" item in the current research. Item 7 did not load high enough on to either subscale whereas item 16 loaded equally on both subscales. These items were removed from the analyses. Once these changes were made, the average of the "Information Sharing" subscale and the "Behavioural Involvement" subscale were calculated and used to represent participants' general preferences for SDM.

Table 4. *Factor Analysis of Items within General SDM Preferences Measure*

Items	Factor 1 Information Sharing	Factor 2 Behavioural Involvement	Origin of item (subscale)
1. It is better to trust the doctor or nurse in charge of a medical procedure than to question what they are doing [a]	**.62**	.31	KHO (IS)
2. Clinics and hospitals are good places to go for help since it's best for medical experts to take responsibility for healthcare [a]	.26	**.57**	KHO (BI)
3. Patients should be treated as if they were partners with the doctor, equal in power and status	**.56**	-.03	PPO (S)
4. Learning how to cure some of your own illness without contacting a physician is a good idea	-.09	**.77**	KHO (BI)
5. It is better to rely on the judgement of doctors (who are experts) than to rely on "common sense" in taking care of your own body [a]	.25	**.68**	KHO (BI)
6. I usually wait for the doctor or nurse to tell me the results of a medical exam rather than asking them immediately [a]	**.45**	.14	KHO (IS)
7. It is not that important to know a patient's culture and background in order to treat the person's illness [a]	**.39**	.11	PPO (C)
8. I'd rather be given choices about what's best for my health than to have the doctor make decisions for me	**.51**	.33	KHO (IS)

9.	I usually don't ask the doctor or nurse many questions about what they are doing during a medical exam [a]	**.68**	.09	KHO (IS)
10.	The doctor is the one who should decide what gets talked about during a visit [a]	**.59**	.32	PPO (S)
11.	I usually ask the doctor or nurse lots of questions about the procedures during a medical exam	**.61**	-.02	KHO (IS)
12.	Recovery is usually quicker under the care of a doctor or nurse than when patients take care of themselves [a]	**.41**	**.63**	KHO (BI)
13.	If doctors are truly good at diagnosis and treatment, the way they relate to their patients is not important [a]	.**58**	.19	PPO (C)
14.	Learning how to cure some of your own illness without contacting a physician may create more harm than good [a]	.06	**.80**	KHO (BI)
15.	I'd rather have doctors and nurses make the decisions about what's best for me, than for them to give me a whole lot of choices [a]	**.65**	**.47**	KHO (IS)
16.	The patient must always be aware that the doctor is in charge[1]	**.54**	**.47**	PPO (C)

Note. *n*=158. Factor loadings of 0.40 or higher are in boldface type.
KHO represents the Krantz Health Opinion Survey, with subscales of Information Sharing (IS) and Behavioural Involvement (BI). PPO represents the Patient-Practictioner Orientation Scale, with subscales of sharing (S) and caring (C).
[a] Item was reverse scored so higher scores represented higher preference for SDM.

Participants reported greater preferences for information sharing than behavioural involvement (as shown in Table 5 and Table 6).When a score of three or greater (i.e. the mid-point of the scale) was considered to represent a preference for SDM, 90.6% of participants preferred an SDM approach for information sharing and 66% preferred the same for behavioural involvement. This criteria of three or higher on a 5-point scale has been used by many SDM studies as representative of collaborative and active care (Flynn et al., 2006; Ramfelt, Bjorvell, & Nordstrom, 2000; Wallberg, 2000). These results fit with those reported in the literature, as well as results from the full versions of both the KHO and PPO (Braman & Gomez, 2004; Cvengros, Christensen, Cunningham, Hillis, & Kaboli, 2009; Krantz, Baum, & Wideman, 1980; Sutherland, Llewellyn-Thomas, Lockwood, Tritchler, & Till, 1989). The Cronbach's alphas for information sharing and behavioural involvement subscales indicated that both subscales had good internal reliability.

Table 5. *Descriptive Statistics of Participants' General SDM Preferences*

SDM preferences	*M*	*SD*	Cronbach's α
Information Sharing	3.68	(0.56)	.83
Behavioural Involvement	3.18	(0.70)	.77

Note. Mean (SD) are presented.

Table 6. *Frequencies of Participants' General SDM Preferences*

SDM preferences	*n*	Percentage
Information Sharing		
Mean score of below 3	15	9.4
Mean score of 3 or higher	144	90.6
Behavioural Involvement		
Mean score of below 3	54	34.0
Mean score of 3 or higher	105	66.0

Hypothetical scenarios. Hypothetical scenarios were used to investigate whether the duration or perceived seriousness of the health complaint predicted participants' SDM preferences within a specific consultation. The duration of the health complaint was described as lasting either two days (acute) or for over a month (chronic). Meanwhile, the perceived seriousness of the health complaint was described within the hypothetical scenario as either "You feel this isn't a particularly serious health problem" or "You feel this is a very serious health problem". These details were highlighted in bold within the text, in order to emphasise the differences across the scenarios. Participants received four hypothetical scenarios that varied according to these features. In this way, all participants received a scenario describing; a not very serious, acute health complaint; a not very serious, chronic health complaint; a serious, acute health complaint; and a serious, chronic health complaint.

Acute health problem/ low seriousness:

Imagine that you have developed a painful headache (nausea) that has lasted **for two days.**
You feel that it **isn't a particularly serious** health problem, however it is disrupting your daily life and you have found that Panadol (over-the-counter anti-nausea treatments) does/do not provide you with any relief.

You have decided to see your doctor about it.

Chronic health problem/ low seriousness:

Imagine that you have developed a painful headache (nausea) that has **been persistent** for over a month .
You feel that it **isn't a particularly serious** health problem, however it is disrupting your daily life and you have found that Panadol (over-the-counter anti-nausea treatments) does/do not provide you with any relief.

You have decided to see your doctor about it.

Acute health problem/ high seriousness:

Imagine that you have been experiencing a painful headache (nausea) that had lasted for **two days**.
You feel that it **is a particularly serious** health problem. It is disrupting your daily life and you have found that Panadol (over-the-counter anti-nausea treatments) does/do not provide you with any relief.

You have decided to see your doctor about it.

Chronic health problem/ high seriousness:

Imagine that you have developed a painful headache (nausea) that has **been persistent** for over a month .

You feel that it **is a particularly serious** health problem. It is disrupting your daily life and you have found that Panadol (over-the-counter anti-nausea treatments) does/do not provide you with any relief.

You have decided to see your doctor about it.

Figure 1. Wording of the four hypothetical scenarios describing headaches
Note. Adaptions for nausea are included brackets

Additionally, the type of health complaint that was described within the scenarios was also manipulated. Half of the participants completed scenarios describing headaches, and the other half received scenario reporting nausea. This was done to make any findings robust across different complaints. These health complaints were chosen as either could be described as acute or chronic and could be perceived as serious or not serious. Both conditions were considered to be no more common in any specific age group and it was likely that most individuals would have experienced them at some stage in their life. Figure 1 shows the wording of the scenarios, with the variations for the health concern of nausea included in brackets. All scenarios indicated that the health complaint was disrupting the patient's daily life and that typical medication (Panadol or over-the-counter anti-nausea treatments) provided no relief. The last statement within each scenario indicated that participants had decided to see their doctor about the concern. This was included in order to avoid participants from responding that they would not choose to seek care in this situation. Participants read all four scenarios that either described headaches or nausea. However, participants were randomly assigned to reading one of the four scenarios first, thereby counterbalancing their order (see Table 7 for number of participants in each group).

Table 7. *Number of Participants that Completed the Following Scenarios as their First Scenario*

Version of Questionnaire	*First Scenario*	*n*
Headaches		
Version 1	Acute, Low Seriousness	20
Version 2	Chronic, Low Seriousness	22
Version 3	Acute, High Seriousness	18
Version 4	Chronic, High Seriousness	19
Nausea		
Version 1	Acute, Low Seriousness	16
Version 2	Chronic, Low Seriousness	23
Version 3	Acute, High Seriousness	22
Version 4	Chronic, High Seriousness	18

To avoid repetitiveness, the wording of the second, third and fourth scenario that participants read was adapted slightly. For example, the second headache scenario following the chronic and low seriousness version of the scenario started with: "Imagine that the painful headache above had **been persistent** for over a month**,** but that, as before, you feel it **isn't a particularly serious** health problem.". Questionnaires were labelled according to the order of the scenarios, otherwise referred to as the version of the questionnaire. Appendix C includes further information about the questionnaire versions, as well as a full copy of version 1 of both the headache and nausea scenarios.

Dependent variables within the hypothetical scenarios. After reading each scenario, participants answered five questions about their SDM preferences for that specific consultation. Two items were based on items occurring in both the Krantz Health Opinion Survey (KHO) (Krantz et al., 1980) and the Patient Practitioner Orientation Scale (PPO) (Krupat et al., 2000) and asked "On a scale of 1 to 10 how much information would you want from your doctor regarding this problem?" (1 = "no information", 10 = "lots of information") and "To what extent would you like to ask questions in this consultation?" (1 = "no questions", 10 = "lots of questions"). Choice about treatment was measured with an item adapted from the KHOS and asked "On a scale from 1 to 10, how much choice would you like regarding treatment options in this situation?" (1 = "no choice, 10 = "lots of choice"). One item was adapted from the "sharing" subscale of the PPO and asked "Who should determine what gets talked about during the consultation". Participants answered this item on a 5-point scale ranging from "The doctor alone", "Mostly the doctor", "Both the doctor and I, equally", "Mostly me", "Me alone". The last

item asked “Who should determine how your headache should be treated, in this situation?” was based on research by Flynn et al.(2006) and Ende et al. (1989). They indicated that desire for involvement in final treatment decisions may be particularly important, in terms of individuals’ preferences for behavioural involvement. This item was also measured using the same 5-point scale as before. Headaches and nausea were considered to require little physical participation in treatment compared to other health complaints, such as physical rehabilitation for physical injuries or lifestyle changes for metabolic complaints. Due to the simplicity of these complaints, as well as the strength of final decision making preferences in the study by Flynn et al (2006), only one item measuring final treatment decision making was included as a measure of participants’ behavioural involvement preferences within the hypothetical scenarios.

On analysis of participants’ responses to the first scenario only, hardly any variance occurred in participants’ responses to “Who should determine what gets talked about during the consultation”. As a result, this item was excluded from further analyses. A factor analysis using responses from the first scenario participants completed was done to assess the underlying factor structure of the remaining 4 items. The scree test revealed 2 factors with eigenvalues greater than 1, together explaining 67% of the variance. The average score of questions 1, 2 and 4 represented “Information Sharing” and question 5 measured “Behavioural Involvement”, as it received a substantially higher loading on this factor (see Table 8).The Cronbach’s alpha for the Information Sharing subscale was 0.738, indicating good reliability.

Table 8. *Factor Analysis of Items that Measured Specific SDM Preferences within the Hypothetical Scenarios*

	Item	Factor 1 (Information Sharing)	Factor 2 (Behavioural Involvement)	Measure item was based on
1.	How much information would you want from your doctor regarding this problem?	**.73**	-.43	PPO and KHO
2.	How much choice would you like regarding treatment options in this situation?	**.75**	-.17	KHO
4.	To what extent would you like to ask questions in this consultation?	**.80**	-.20	KHO and PPO
5.	Who should determine how your headache/nausea should be treated, in this situation?	**.44**	**.73**	Flynn et al (2006) – final decision making

Note: *n*=158. Factor loadings of 0.40 or higher are in boldface type.

Analyses

Associations between demographic variables, health status and personality variables. The relationships between participants' SDM preferences and demographic variables, participant health status and personality variables were analysed by Pearson's correlation coefficients. T-tests were used for ordinal variables, such as sex. Hierarchical multiple regressions were completed for both information sharing and behavioural involvement preferences, using variables that significantly correlated with each as predictors. Demographic variables and health status were entered in Step 1 and personality variables were entered in Step 2, in order to separate out the variance that each accounted for.

Hypothetical scenarios. Two types of analyses were completed in order to examine participants' SDM preferences for the hypothetical health conditions. Between-subjects analyses were used to examine whether participants' responses to the first scenario they completed varied according to the features of the health condition they were responding to. Then, within-subjects analyses examined whether participants' preferences for SDM varied across all four scenarios they received.

Between-subject analyses. Participants' responses to the first scenario they received were analysed using between-subjects analyses of variance. Two of these analyses were completed; one for participants' preferences for information sharing for the first scenario, and one for participants' preferences for behavioural involvement for the same health concern. These analyses were 2 (low seriousness vs. high seriousness) x 2 (acute vs. chronic) x 2 (headaches vs. nausea) ANOVAs with all factors between-subjects. The between-subjects analyses were used in order to examine whether participants' preferences for SDM differed according to the

seriousness or duration of the health concern that they were seeking care for. Main effects of duration, seriousness and the type of health concern were investigated, as two- and three-way interactions.

Next, the relationships with general SDM preferences were taken into account. Pearson's correlation coefficients were calculated between general SDM preferences and SDM preferences in response to the first scenario. If significant, the analyses of variance will be repeated including the general SDM preferences as a covariate in order to examine whether any differences in SDM preferences in response to different scenarios remained significant after controlling for general SDM preferences.

Within-subject analyses. Participants' responses to all four scenarios were investigated using two repeated measures-analyses. Participants' preferences for information sharing and behavioural involvement for each of the four hypothetical health complaints were measured by these analyses, with the type of health concern they received (either headaches or nausea) included as a between-subjects factor. These analyses examined whether participants' specific SDM preferences differed according to the duration or perceived seriousness of their health concern.

Pearson's correlation coefficients were then calculated between general SDM preferences and SDM preferences in response to the four scenarios. If significant, the repeated-measures analyses will be repeated including the general SDM preferences as a covariate in order to examine whether any differences in SDM preferences in response to different scenarios remained significant after controlling for general SDM preferences.

Results

Associations between demographic variables, health status and personality variables with general SDM preferences

Table 9 shows the relationships between demographics and participants' SDM preferences, as measured by the patient self-reported SDM measure. Those who preferred more information exchange and more behavioural involvement in decision making tended to be younger and more educated than those preferring less information and involvement. Females preferred more information sharing (M = 3.76) and behavioural involvement (M =3.29) than males ($M_{\text{information sharing}}$ = 3.42, $M_{\text{behavioural involvement}}$ = 2.91), t (157) = -3.38, $p < .001$, t (157) = -3.08, $p < .01$, respectively. Income or participant mental health did not correlate with participants' SDM preferences, however participant physical health did. Those with better physical health tended to prefer more behavioural involvement than those with poor physical health scores. No association occurred between patient physical health and their information sharing preferences.

Table 9. *Correlation Coefficients between Participants' SDM preferences and their Demographic Variables*

	SDM preferences	
	Information Sharing	Behavioural Involvement
Age	-.25**	-.24**
Sex	.26**	.23**
Education	.33**	.35**
Marital status	.01	.07
Income	.04	.07
Physical health	.04	.18*
Mental health	.00	-.05

Note *$p < .05$, **$p < .01$

Table 10 displays the associations between participants' self-reported SDM preferences and their personality characteristics. All Health Locus of Control (HLOC) variables were found to associate strongly with participants' SDM preferences, with only one relationship not reaching significance. Internal HLOC was found to not relate to participants' information sharing preferences; however it was positively related to participants' preferences for behavioural involvement. Both Chance and Powerful Others HLOC were negatively associated with participants' information sharing and behavioural involvement preferences.

Table 10. *Correlation Coefficients between Participants' SDM Preferences and their Personality Characteristics*

	SDM preferences	
Personality characteristics	Information Sharing	Behavioural Involvement
Health Locus of Control		
Internal	.13	.33**
Chance	-.34**	-.39**
Powerful others	-.41**	-.49**
Big Five		
Openness	.23**	.21**
Conscientiousness	.21**	.04
Extroversion	-.07	-.12
Agreeableness	.12	.13
Neuroticism	.05	.08

Note. *$p < .05$, **$p < .01$

As for the Big Five variables, only Openness and Conscientiousness associated with participants' SDM preferences. Participants who scored high on Openness desired more information sharing and behavioural involvement in comparison to those scoring low on Openness. Furthermore, highly conscientious participants preferred more information sharing,

but not more involvement than those who were low in Conscientiousness. No significant relations were found between SDM preferences and the other Big Five variables.

Regression analyses. Two hierarchical multiple regression analyses were completed to examine the relationships between demographic variables, health status, personality variables and SDM preferences further. Models included only the variables that had shown significant correlations with each of the SDM scales. Demographic variables and health status were entered into the regression first, followed by personality variables in the second step. Multicollinearity was not a concern as all independent variables showed small to moderate relationships with information sharing or behavioural involvement, as well as with each other. Furthermore, sample size was not a concern, as $N = 137$, and the number of independent variables remained lower than 11. This meant that a regression analysis was appropriate in this context.

Information Sharing. The first step of the hierarchical multiple regression for information sharing included age, sex and education. These variables explained 17.2 % of the variance in information sharing preferences. After entry of Chance HLOC, Powerful Others HLOC, Openness and Conscientiousness at Step 2, the total variance explained by the model as a whole was 33.7%, F (7, 147) = 10.67, $p < .01$). The four measures explained an additional 16.5% of the variance in information sharing scores, after controlling for age, sex and education, F *change* (4, 146) = 8.92, $p < .01$). In the final model, sex, education, Powerful Others HLOC and Chance HLOC were statistically significant (see Table 11). Age, Openness and Conscientiousness were no longer significant predictors of information sharing once other variables were taken into account.

Table 11. *Predictors of Participants' Information Sharing Preferences*

	R^2	R^2 *change*	*Standardised* β
Step 1	0.17		
Age			-0.11
Sex (male=1, female=2)			0.20**
Education			0.26**
Step 2	0.33	0.16	
Age			-0.00
Sex			0.19**
Education			0.18*
Chance HLOC			-0.23**
Powerful others HLOC			-0.23**
Openness			0.13
Conscientiousness			0.06

Note. *$p < .05$, **$p < .01$

Behavioural Involvement. The same process was repeated for behavioural involvement. Age, sex, education and physical health were entered at Step 1, explaining 17.7% of the variance in behavioural involvement scores. Once Internal HLOC, Chance HLOC, Powerful Others HLOC, Openness and Conscientiousness were entered in Step 2, the total variance explained by the model as a whole was 44.2%, F (9, 145) = 12.79, $p < .01$. The personality measures explained an additional 26.6% of the variance in behavioural involvement, after controlling for the demographic variables, *F change* (5, 143) = 13.82, $p < .01$. In the final model, sex, education, Internal HLOC and Powerful Others HLOC were statistically significant (seeTable 12).

Table 12. *Predictors of Participants' Behavioural Involvement Preferences*

	R^2	R^2 *change*	*Standardised* β
Step 1	0.17		
Age			-0.08
Sex (male=1, female=2)			0.18*
Education			0.26**
Physical Health			0.11
Step 2	0.42	0.24	
Age			0.08
Sex			0.17**
Education			0.23**
Physical Health			-0.03
Chance HLOC			-0.10
Powerful others HLOC			-0.37**
Internal HLOC			0.27**
Openness			0.05

Note. *$p < .05$, **$p < .01$

Hypothetical scenarios

Between-subjects Analyses. Between-subjects analyses were completed to examine whether variations in seriousness, and duration of the health condition elicited different preferences for SDM. These analyses were 2 (low seriousness vs. high seriousness) x 2 (acute vs. chronic) x 2 (headaches vs. nausea) ANOVAs with all factors between-subjects. Participants' SDM preferences for only the first scenario they read were used, resulting in two analyses of variance (one for information sharing and one for behavioural involvement).

Information Sharing. The descriptive statistics for participants' information sharing preferences in response to the first scenario are presented in Table 13). Overall, high amounts of information sharing were desired by most participants.

Table 13. *Descriptive Statistics for Participants' Information Sharing Preferences in the First Scenario*

Health condition	Duration	Seriousness	
		Low *M* (*SD*)	High *M* (*SD*)
Headaches	Acute	8.10 (1.17)	8.72 (1.19)
	Chronic	8.82 (1.47)	8.50 (1.38)
Nausea	Acute	8.70 (1.03)	8.40 (1.31)
	Chronic	8.34 (1.70)	9.07 (1.03)

Note. Items were measured on a 10-point scale.

Table 14. *Associations between Participants' Specific Information Sharing Preferences and the Features of the Health Complaint they were Responding to*

	F (1,149)	*p*
Perceived seriousness	0.73	.39
Duration	0.91	.34
Type of Health concern	0.20	.65
Duration x Seriousness	0.01	.91
Duration x Type of Health Concern	0.05	.80
Seriousness x Type of Health Concern	0.02	.88
Duration x Seriousness x Type of Health Concern	5.30	.02*

Note. *$p < .05$, **$p < .01$

Table 14 presents the results for the analysis of variance for participants' preferences for information sharing within the first scenario. No main effects were found for perceived seriousness, duration or type of health concern. There were also no significant two-way

interactions. However a significant three-way interaction was found between seriousness, duration and the health concern, F (1, 149) = 5.30, $p < .05$. This indicated that the combination of all three variables influenced participants' information sharing preferences.

The three-way interaction is illustrated in Figure 2, which graphs the descriptive statistics for participants' information sharing preferences across the hypothetical health complaints. It indicates that chronic nausea and acute headaches elicited in greater preferences for information exchange when they were perceived to be seriousness, compared to when they were perceived as not very serious. The opposite trend was found for acute nausea and chronic headaches, as more information sharing was desired when these complaints were perceived as not very serious.

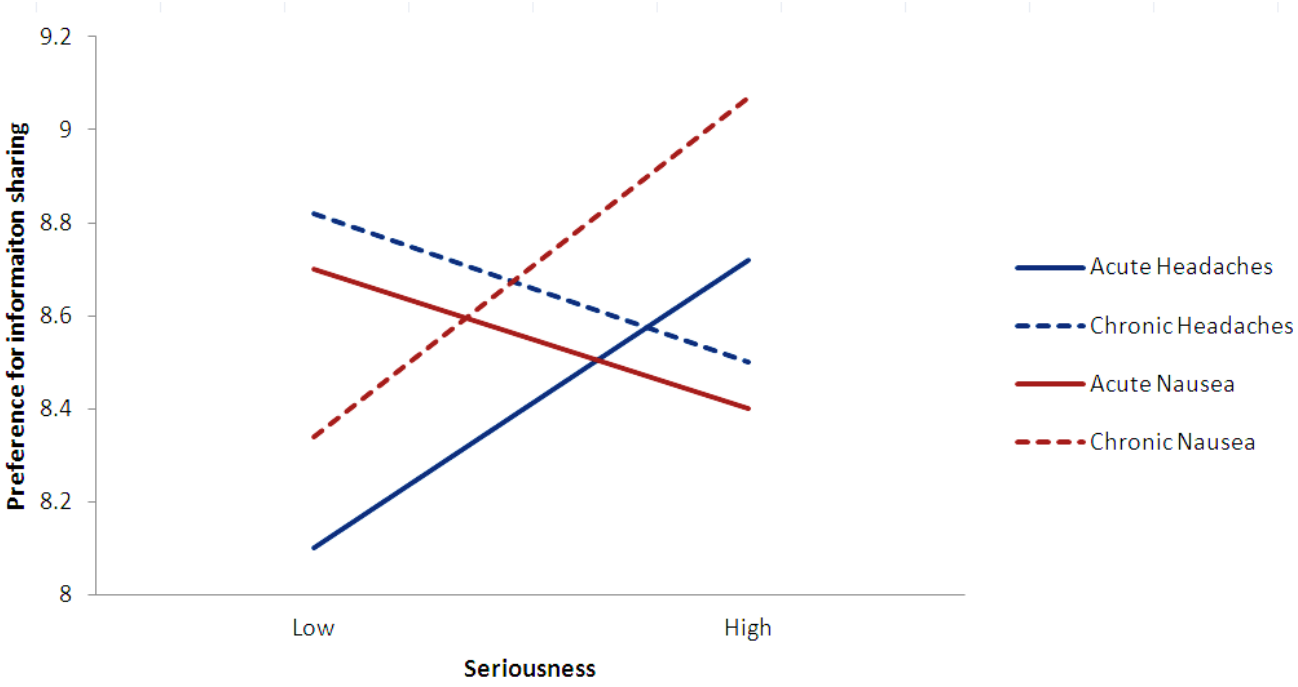

Figure 2. Interaction in participants' preferences for information sharing between hypothetical scenarios that differed in seriousness (low or high perceived seriousness), duration (acute: 2 weeks, or chronic: a month) and the identity of health concern (headaches or nausea).

Behavioural Involvement. Similar results were found regarding participants' behavioural involvement preferences within the first scenario they read. Table 15 reports the descriptive statistics for participants' behavioural involvement preferences. Most participants reported some desire for involvement in making the final treatment decision for their specific health concern.

Table 15. *Descriptive Statistics for Participants' Behavioural Involvement Preferences in the First Scenario*

Health Condition	Duration	Seriousness	
		Low *M* (*SD*)	High *M* (*SD*)
Headaches	Acute	2.65 (0.67)	2.61 (0.50)
	Chronic	2.86 (0.85)	2.58 (0.83)
Nausea	Acute	3.06 (0.77)	2.68 (0.56)
	Chronic	2.74 (0.68)	2.89 (0.47)

Note. Items were scored out of 5.

Table 16. *Associations between Participants' Specific Behavioural Involvement Preferences and the Features of the Health Complaint they were Responding to*

	F (1,149)	*p*
Seriousness	1.55	.22
Duration	0.01	.89
Type of Health concern	2.35	.12
Duration x Seriousness	0.43	.50
Duration x Type of Health Concern	0.43	.50
Seriousness x Type of Health Concern	0.03	.84
Duration x Seriousness x Type of Health Concern	3.05	.08[1]

Note. [1]marginal significance

Table 16 presents the results from the analysis of variance. As in participants' information sharing preferences, no main effects were found for seriousness, duration or type of health concern and no significant two-way interactions occurred. However a marginal significant three-way interaction was found between seriousness, duration and the health concern, F (1, 149) = 3.05, p = .08. This indicated that it was the combination of all three variables that could account for variance in participants' desire for involvement.

The three-way interaction is shown Figure 3. This interaction differs from the interaction found for information sharing preferences, as most health complaints evoked less desire for involvement when they were perceived as serious. However, chronic nausea showed a different trend than all other health complaints. It evoked greater desire for behavioural involvement when it was perceived to be a serious health concern.

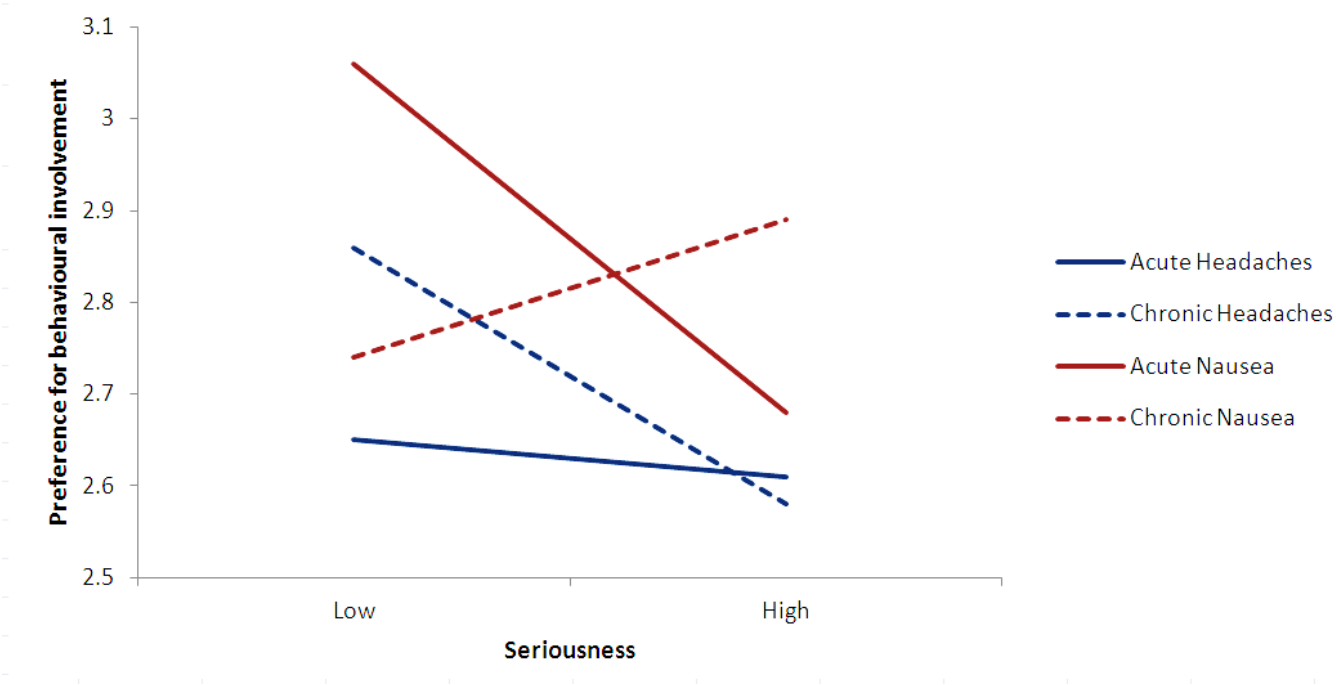

Figure 3. Interaction in participants' preferences for behavioural involvement between hypothetical scenarios that differed in seriousness (low or high perceived seriousness), duration (acute: 2 weeks, or chronic: a month) and the identity of health concern (headaches or nausea)

Influence of participants' general SDM preferences. Participants' general SDM preferences need to be taken in to account when analysing their responses to the hypothetical health complaints. Participants' SDM preferences, for the first scenario they received, were significantly correlated with their general preferences for SDM, rated earlier in the questionnaire (see Table 17). Moderate to strong correlations were found between SDM preferences for the first scenario and participants' general SDM preferences. These positive relationships support the construct validity of the hypothetical scenarios, as they suggested that the hypothetical scenarios and the self-report scale were measuring similar constructs. However, these results also indicated that the hypothetical scenarios were not capturing exactly the same responses as items that measured participants' general preferences.

Table 17. *Correlation Coefficients between Participant's General SDM preferences and their SDM Preferences within the First Scenario*

	General SDM Preferences	
	Information Sharing	Behavioural Involvement
SDM preferences reported within the first scenario		
Information Sharing	.44**	.29**
Behavioural Involvement	.44**	.44**

Note. *$p < .05$, **$p < .01$

Due to the significant associations between these variables, the analyses that examined participants' preferences within the first scenario needed to control for participants' general SDM preferences. Therefore, the between-subjects analyses were repeated, with participants' general SDM preferences included as covariates.

The results of these analyses are reported in Table 18 and 19. They indicated that participants' general SDM preferences accounted for a significant amount of variance in participants' preferences within the first hypothetical scenario. This significant association occurred for their preferences for information sharing and their preferences for behavioural involvement. As found in earlier analyses, no main effects or two-way interactions were occurred for participants' information sharing or behavioural involvement preferences within the first scenario. However, discrepant from previous results, no three-way interactions were found when participants' general SDM preferences were controlled for. This showed that, once participants' general preferences were taken into account; the three-way interactions were no longer significant.

Table 18. *Associations between Participants' Specific Information Sharing Preferences and the Features of the Health Complaint they were Responding to, when their General Preferences for Information Sharing were Controlled for.*

	F (1,148)	*p*
General preferences for Information Sharing	29.65	.00**
Seriousness	1.21	.27
Duration	0.91	.34
Type of Health concern	0.15	.69
Duration x Seriousness	0.39	.53
Duration x Type of Health Concern	0.06	.80
Seriousness x Type of Health Concern	0.00	.94
Duration x Seriousness x Type of Health Concern	1.38	.24

Note. *$p < .05$, **$p < .01$

Table 19. *Associations between Participants' Specific Behavioural Involvement Preferences and the Features of the Health Complaint they were Responding to, when their General Preferences for Behavioural Involvement were Controlled for.*

	F (1,148)	*p*
General preferences for Behavioural Involvement	32.61	.00*
Seriousness	0.91	.39
Duration	0.30	.58
Type of Health concern	1.07	.30
Duration x Seriousness	1.29	.25
Duration x Type of Health Concern	0.01	.91
Seriousness x Type of Health Concern	0.32	.57
Duration x Seriousness x Type of Health Concern	0.54	.46

Note. *$p < .05$, **$p < .01$

Within-subjects analyses. Two repeated-measures analyses of variance were conducted to investigate if participants reported differing SDM preferences across the scenarios. These analyses compared participants' preferences within the four scenarios that varied in duration and seriousness, as well as the preferences between those who received scenarios for nausea and those for headaches. This resulted in two 4 (scenario: low serious/acute, high serious/acute, low serious/chronic, high serious/chronic) x 2 (type of health concern)-analyses of variance, with the first factor within-subjects and the second factor between-subjects. Two analyses were completed; one for information sharing preferences and one for behavioural involvement preferences. Compared to the between-subjects analyses described in the previous section, these within-subjects analyses have greater power. Hence, smaller effects may be detected.

Information Sharing. The descriptive statistics for participants' preferences for information sharing across the four scenarios are given in Table 20.

Table 20. *Descriptive Statistics for Participants' Preferences for Information Sharing Across all Four Scenarios*

	Scenario 1. Acute Low Seriousness *M* (*SD*)	Scenario 2. Chronic Low Seriousness *M* (*SD*)	Scenario 3. Acute High Seriousness *M* (*SD*)	Scenario 4. Chronic High Seriousness *M* (*SD*)
Information sharing total	8.00 (1.73)[a]	8.44 (1.54)[b]	8.66 (1.34)[c]	8.86 (1.15)[d]
Headaches only	7.87 (1.84)	8.35 (1.63)	8.65 (1.29)	8.81 (1.17)
Nausea only	8.13 (1.62)	8.53 (1.44)	8.68 (1.40)	8.91 (1.14)

Note. Information sharing was scored out of 10. Information sharing total: means with different superscripts differ significantly from each other at $p < .05$ (post-hoc analyses).

Table 21 reports the results of the analysis of variance. Significant differences occurred in participants' preferences for information sharing across the four scenarios, F (1, 148) = 27.18, $p < .01$. The type of health concern (headaches or nausea) that participants were experiencing was not significantly associated with their preferences for information sharing. There was also no significant interaction between the scenarios and type of health concern. Post-hoc analyses (tests of within-subjects contrasts) were completed to further examine the differences between the scenarios (means with different superscripts for total information sharing in Table 19 differed significantly from each other at $p < .05$). Table 20 shows that all four scenarios elicited significantly different preferences for information sharing from participants (i.e. all means have different superscripts). The highest amount of information exchange was preferred by those who perceived their condition as highly serious and chronic, while the least amount of information

exchange was preferred by those who perceived their condition as not serious and acute. These results also suggested that patients' preferences for information increased in a step-like fashion, with acute yet serious complaints evoking greater preferences for information sharing than chronic not serious complaints.

Table 21. *Associations between Participants' Specific Information Sharing Preferences and the Features of Health Complaint Across all Four Scenarios*

	F (1, 148)	*p*
Scenario	27.18	.00**
Type of Health Concern	0.45	.49
Scenario x Type of Health Concern	0.47	.63

Note. *$p < .05$, **$p < .01$,

Behavioural Involvement. The descriptive statistics for behavioural involvement are given in Table 22, with modest amounts of involvement reported by most participants.

Table 22. *Descriptive Statistics for Participants' Preferences for Behavioural Involvement Across all Four Scenarios*

	Scenario 1. Acute Low Seriousness *M (SD)*	Scenario 2. Chronic Low Seriousness *M (SD)*	Scenario 3. Acute High Seriousness *M (SD)*	Scenario 4. Chronic High Seriousness *M (SD)*
Behavioural involvement total	2.74 (0.73)[a]	2.75 (0.70)[a]	2.64 (0.68)[b]	2.57 (0.72)[b]
Headaches only	2.72 (0.72)	2.68 (0.78)	2.62 (0.71)	2.51 (0.70)
Nausea only	2.75 (0.74)	2.82 (0.60)	2.66 (0.66)	2.62 (0.74)

Note. Behavioural involvement was scored out of 5. Behavioural involvement total: means with different superscripts differ significantly from each other at $p < .05$ (post-hoc analyses).

The within-subjects analysis found a significant difference occurred in participants' preferences for involvement across the four scenarios, F (1, 148) = 6.72, p < .001 (see Table 23). As with information sharing preferences, the type of health concern was not associated with behavioural involvement preferences, nor did it interact with any of the scenarios. Post-hoc analyses (tests of within-subjects contrasts) enabled differences between the scenarios to be examined (means with different superscripts for total behavioural involvement in Table 22 differed significantly from each other at $p < .05$). Table 22 shows that scenarios that differed in the perceived seriousness of the health condition elicited different preferences for behavioural involvement. Participants preferred more involvement when they perceived that their health concern was not very serious, compared to when they perceived that their health concern was very serious. Scenarios that had the same seriousness but different duration, such as scenario 1 and 2 or 3 and 4, showed no significant differences in preferences for involvement.

Table 23. *Associations between Participants' Specific Behavioural Involvement Preferences and the Features of Health Complaint Across all Four Scenarios*

	F (1, 148)	*p*
Scenario	6.72	.00**
Type of Health Concern	0.63	.42
Scenario x Type of Health Concern	0.57	.63

Note. *$p < .05$, **$p < .01$

Influence of general SDM preferences. As with the between-subjects analyses, it was possible that the within-subjects analyses results could be influenced by participants' general preferences for SDM. Participants' preferences for SDM within the scenarios were found to be moderate-to-strongly correlated with their general SDM preferences (see Table 24). This

indicated that the analyses of participants' preferences for the hypothetical health complaints must control for their general SDM preferences.

The within-subjects analyses were repeated, with participants' general preferences for SDM included as covariates. This enabled participants' SDM preferences across the scenarios to be examined, with their general preferences for SDM controlled for. In this way, it could be distinguished whether the features of the health concern could continue to account for some of the variance in participants' SDM preferences, despite their general preferences for SDM being accounted for.

Table 24. *Correlation Coefficients between Participants' General SDM preferences and their SDM Preferences for Each of the Scenarios*

	General SDM preferences	
	Information Sharing	Behavioural Involvement
Scenario 1. Acute, Low Seriousness		
Information Sharing	.31**	.18*
Behavioural Involvement	.47**	.44**
Scenario 2. Chronic, Low Seriousness		
Information Sharing	.33**	.23**
Behavioural Involvement	.44**	.47**
Scenario 3. Acute, High Seriousness		
Information Sharing	.45**	.30**
Behavioural Involvement	.46**	.38**
Scenario 4. Chronic, High Seriousness		
Information Sharing	.34**	.24**
Behavioural Involvement	.46**	.43**

Note. *$p < .05$, **$p < .01$

Table 25 and 26 report the results of the information sharing and behavioural involvement analyses. These analyses revealed differing results from the earlier within-subjects analyses. Participants' preferences for information sharing continued to differ significantly across the four scenarios. However post-hoc analyses revealed that a different trend occurred. They reported that the chronic, highly serious health concern elicited significantly greater preferences for information sharing compared to all other scenarios. This suggested that, when participants' general SDM preferences were accounted for, only chronic, highly serious health complaints evoked significantly greater preferences for information sharing.

In terms of participants' preferences for behavioural involvement, no significant differences remained across the scenarios when their general SDM preferences were accounted for. This suggested that participants' preferences for behavioural involvement did not differ according to the features of the health concern.

Table 25. *Associations between Participants' Specific Information Sharing Preferences and the Features of all Four Scenarios, when Participants' General Information Sharing Preferences were Controlled for*

	F (df=1,147)	*p*
Scenario	3.08	.04*
Type of health concern	0.47	.49
Covariate (General Preferences for Information Sharing)	30.91	.00**
Scenario x Type of health concern	0.47	.63
Scenario x Covariate	1.54	.21

Note. *$p < .05$, **$p < .01$,

Table 26. *Associations between Participants' Specific Behavioural Involvement Preferences and the Features of all Four Scenarios, when Participants' General Behavioural Involvement Preferences were Controlled for*

	F (df=1,147)	*p*
Scenario	0.43	.72
Type of health concern	0.10	.74
Covariate (General Preferences for Behavioural Involvement)	46.97	.00**
Scenario x Type of health condition	0.53	.65
Scenario x Covariate	1.63	.59

Note. *$p < .05$, **$p < .01$,

Discussion

The current study addressed two research objectives: to determine the extent to which participants demographic variables, health status and personality characteristics were associated with their preferences for SDM, and to ascertain whether characteristics of the health condition that participants sought care for influenced their SDM preferences for that specific consultation. Main findings and conclusions are reviewed below, with implications of these findings discussed. Strengths and limitations of the current study will then be addressed and recommendations are made for future research.

Associations between SDM preferences and demographic variables, health status and personality characteristics

Participants' SDM preferences were found to be strongly associated with their demographic variables. Regression analyses indicated that participants' education level and sex were found to be the only significant demographic variables for both forms of SDM. These results indicated that those who were female or highly educated preferred more information sharing and behavioural involvement than those who were male and less educated. Although the amount of variance accounted for by these demographic variables (17% for both information sharing and behavioural involvement) was similar to that found in other research (Benbassat et al., 1998; Ende et al., 1989; Jung et al., 2003), it is interesting to note that age was typically the biggest contributor to SDM preferences in these studies, with education being second largest (Beisecker & Beisecker, 1990). Age was found to be negatively correlated with both forms of SDM within the current study, as those who were younger preferred more SDM than those who were older; however when it was included in regression analyses, these associations did not

remain significant. It is possible that, as the sample of the current study was somewhat older, this limited the strength of this association.

In line with other research, the present study found an association between sex and SDM preferences (i.e. females desire more SDM). This relationship remained significant after including other variables within the analyses. This is not always the case in other research as few report sex to be significant within regression analyses (Ende et al., 1989; Jung et al., 2003). It is possible that the strength of sex within the current study may be due to different gender roles within this sample. Kiwi "blokes" are renowned for their staunch, self-sufficient, "she'll be right" attitude, which may promote less collaboration and involvement and in healthcare. To the best of my knowledge, no research has investigated preferences for SDM within a New Zealand sample therefore this conclusion is only preliminary. It must also be considered that the current study was underrepresented by males, therefore the findings need to be replicated within a representative sample before any stronger conclusions can be drawn.

Few associations were found between participants' SDM preferences and their health status. Previous research indicated that those in better physical health preferred more information sharing and behavioural involvement than those with poorer health (Degner & Sloan, 1992; Pendleton & House, 1984; Vick & Scott, 1998). Other findings illustrated that more variance seemed to be occurring in the SDM preferences of samples with poorer health (Beach et al., 2007; Keating et al., 2002). Support was found within the current study for the association with behavioural involvement, as better physical health correlated with higher preferences for involvement. However, this association did not remain when other variables were taken in to

account and no significant association was found between physical health and information sharing preferences. It is possible that a ceiling effect may have occurred in participants' information sharing preferences, which could account for this finding. Information sharing preferences were universally high across all participants in the current study, which may have meant that these scores could not distinguish between those with differing physical health (see Table 5). As expected, no associations were found between participants' SDM preferences and mental health (Patel et al., 2008; Woltmann & Whitley, 2010).

When personality characteristics were considered alongside demographic variables, Health Locus of Control (HLOC) variables was found to have the largest contribution to participants' SDM preferences. This was especially true for beliefs regarding the control that powerful others had over participant health. The findings indicated that those who attributed their health to powerful others preferred less information sharing and involvement in care than those who did not place this responsibility on others. This was in-line with the hypotheses, as previous studies had reported similar findings, with Powerful Others HLOC beliefs often the strongest component of the HLOC model to associate with SDM preferences (Braman & Gomez, 2004; Hashimoto & Fukuhara, 2004; K. A. Wallston et al., 1983).

Previous studies had reported that Internal HLOC beliefs associated with information sharing and behavioural involvement preferences to a similar extent (K. A. Wallston et al., 1983). However, the current study found that Internal HLOC beliefs were positively associated with participants' preferences for involvement in care and not with their preferences for information exchange. It seems that those who feel personally responsible for their health may be

more willing to engage in their own healthcare and that exchanging information may be important to individuals, no matter the degree that they attribute their health to themselves.

The findings for Chance HLOC beliefs also differed from those found within previous research. Chance HLOC beliefs described a significant amount of variance in participants' preferences for exchanging information in the current study, even when demographic variables were controlled for. This association was negative, with those who believed that their health was determined by chance reporting lower desire for information exchange. Previous studies reported that Chance HLOC had the weakest and often non-significant, association with SDM preferences and that this relationship was not specific to either of the two SDM components (Braman & Gomez, 2004; K. A. Wallston et al., 1983). Current findings indicate this may not be so, as Chance HLOC described unique variance in information sharing preferences only. It seems that those who perceive that their health is determined by chance may be less likely to value information exchange, as they may perceive that this exchange will not assist in resolving their health concern. Overall, HLOC findings indicate that, even when age and education are controlled for, all three components of the HLOC model described significant amounts of variance in participants' SDM preferences, although this differed across the two components of SDM.

HLOC variables showed stronger associations with SDM preferences, compared to the Big Five model of personality. Openness was positively associated with both forms of SDM, while conscientiousness was positively associated with participants' information sharing preferences. These associations replicated those found in a younger, highly educated sample of university students (Auerbach & Pegg, 2002), which provides some evidence that they may be

generalisable. However, the current study found that they did not persist once demographic and HLOC variables were considered. No associations were also apparent between participants' SDM preferences and their scores on Agreeableness, Neuroticism and Extraversion. As previous research had found a strong positive association between Neuroticism and participants' preferences for information sharing (Ellington & Wiebe, 1999), it was hypothesised that this relationship may continue within the current study. However, previous research had used a severely ill sample, whereas the sample of the current study were relatively healthy. It is possible that these differences in health may account for the discrepant results. It seems that the Big Five, as measured in 2007, were unable to account for any fluctuations in patients' SDM preferences in 2011.

When personality variables were accounted for, the contribution that demographic variables shared with SDM preferences reduced, as expected. However, education became the smallest contributor to participants' information sharing preferences, with the contribution of sex overtaking the contribution of education. It is possible that education may have been accounting for some of the variance in HLOC specifically for information sharing preferences, as had been reported within previous research (Braman & Gomez, 2004). HLOC beliefs are often found to strongly associate with patient age or education, therefore it is a strength of the current study that regression analyses controlled for the contribution of these variables. Overall, the combined variance that the demographic and personality characteristics accounted for within the current study was similar to the amount of variance reported within other studies (Braman & Gomez, 2004). The results suggested that the amount of variance accounted for in a New Zealand sample is no different from the variance accounted for in other countries. It also identified that both

demographic and personality variables accounted for a similar amount of variance as each other. In this way, it appears that personality characteristics may be just as important as demographic variables in predicting patients' SDM preferences.

SDM preferences for specific health complaints

The current study also investigated whether the specific features of an individual's health concern associated with their preferences for SDM within that specific consultation. Some studies had indicated that chronic health complaints may elicit greater preferences for SDM than acute health complaints (Flynn et al., 2006; Joosten et al., 2008). Research also found mixed results for the seriousness of health complaints, with some finding positive associations with SDM (McKinstry, 2000) and some negative associations occurring in studies (Beaver et al., 1996). However, the majority of these studies used health complaints that were appraised objectively to be serious complaints. These studies did not measure participants' perceptions of the seriousness of their health concern. The current study investigated the influence of the duration and perceived seriousness of the heath concern on SDM preferences, through the use of hypothetical scenarios. The correlations between general SDM preferences and specific SDM preferences are reported first, followed by the outcomes of the between-subjects analyses, the within-subjects analyses and the influence of the type of health concern used.

Associations between general and specific SDM preferences. The current study found that participants' general SDM preferences shared a moderate to strong correlation with their preferences for SDM across (ranging from 0.29 to 0.44, see Table 17) and within (ranging from 0.18 to 0.47, see Table 24) the hypothetical scenarios., The analyses were therefore re-run to

include participants' general SDM preferences as covariates. The strong associations that occurred between these two variables indicated that people reacted, at least to some extent, to the hypothetical scenarios in accordance to their previously reported general preferences for SDM. These correlations were not so high that other variables, such as the chronicity or seriousness of the health complaint, would be unable to contribute to participants' specific SDM preferences. Thus, people react in accordance with their preferences, yet they also seem to take the situation in to account.

Between-subjects analyses. The between-subjects analyses investigated whether participants' responses to the first scenario significantly differed according to the features of the health concern that they were "experiencing". The results indicated that the duration or perceived seriousness of the health concern could not account for variance in participants' specific preferences for SDM, when considered in isolation (main effects) or in conjunction with each other (duration and seriousness interaction). However, in the analysis with information sharing a significant three-way interaction between duration, seriousness and type of health complaint was found. This three-way interaction was marginally significant in the analysis with behavioural involvement. Both three-way interactions became non-significant once general SDM preferences were controlled for. As the three-way interactions were not hypothesized, were very hard to interpret and disappeared when general SDM preferences were taken into account, no further attempt is made to interpret them here. The results did not support the hypotheses of the current study, as previous research had indicated that duration and seriousness were significantly associated with SDM preferences. It was expected that less SDM would be preferred by those with acute complaints, compared to chronic complaints, and those with highly serious

complaints, compared to those who perceived the concern to be not very serious (Arora & McHorney, 2000; Flynn et al., 2006).

Within-subjects analyses. The within-subjects analyses investigated participants' preferences for information sharing and behavioural involvement across all four scenarios they received. These analyses used four-times the amount of data than the between-subjects analyses and therefore had greater power. As the between-subjects analyses found that the features of the health concern were not associated with SDM preferences, once general SDM preferences were controlled for, it was expected that the within-subjects analyses may find similar results.

Yet, the within-subjects analyses indicated that duration and perceived seriousness of the health concern within the scenarios accounted for a significant amount of variance in participants' preferences for information sharing for that specific consultation. A significant stepwise association was found across the scenarios, with the acute, low serious health complaint eliciting the lowest preferences for information sharing and the chronic, serious complaint evoking the highest desire for information exchange. Even when participants' general preferences for information sharing were controlled for, a significant relationship remained. Post-hoc analyses illustrated that a different association was present in this case, as participants' reported significantly greater desire for information exchange for the scenario that described a chronic health concern that they perceived to be overly serious, compared to all other scenarios. However, health complaints that were chronic and perceived to be overly serious elicited greater preferences for information exchange, which was additional to their general preferences for information sharing.

These results suggest that there is something different about chronic health complaints that patients' perceive to be serious that evokes such increased desire for information exchange, when compared to the other health complaints. It appears that individuals with these complaints may value information exchange to a higher degree than others. This could be accounted for by a number of factors. Individuals with chronic and highly serious health complaints may have more information to share and may desire to share more detail, due to experiencing the concern over long period and being overly concerned about it. Information sharing may include details about the symptoms, their onset, the course, the patient's attempts to treat the concern, and what appears to influence the health concern (Beaver et al., 1996). Individuals may have also formulated ideas about what the health concern may be. This extensive amount of data may be a high priority to share with the doctor, in effort to assist in identifying and resolving the problem. Individuals in these circumstances may also desire more discussion and collaboration due to the complexity of these details and their concern about the health issue. Finally, information exchange may also be desired by these patients as a way of coping with their distress (Conner-Smith & Flachsbart, 2007). Those who perceive their health concern to be chronic and highly serious may have many worries about the short and long-term consequences of their concern. The process of information exchange may assist in testing the legitimacy of these concerns and may provide the individual with reassurance, as well as evidence-based information that indicates their actual risk of developing the feared consequences or complications.

Participants' preferences for behavioural involvement, in particular their desire to make final treatment options, were also investigated using within-subjects analyses. These analyses found that the perceived seriousness of the health issue described within the hypothetical

scenarios was associated with participants' willingness to make treatment decisions. However, this association did not persist when participants' general SDM preferences were accounted for. This indicated that participants' desire for involvement did not extend beyond their typical preferences for involvement, no matter the type of health concern they were seeking care for. The literature clearly recognises that behavioural involvement preferences, which include willingness to make treatment decisions, are typically more conservative than participants' preferences for information sharing (Flynn et al., 2006). Therefore it is possible that the current findings simply reflect this outcome. However, the findings of the current study may have been influenced by some shortcomings in the design of the behavioural involvement scale within the hypothetical scenarios. This measure overlooked other elements of behavioural involvement, such as participation in treatment, and the data it produced had limited variance, due to the small scale and use of only one item. Therefore, additional research may be necessary to investigate whether the findings of the current study can be replicated.

Conclusion. The current study found that general SDM preferences accounted for a large amount of the variance in their specific preferences for consultation of a specific health concern. However, health complaints that were considered to be chronic and highly serious evoked greater preferences for information sharing than participants would typically have preferred. Participants' preferences for making final treatment decisions did not seem to be associated with the features of the health concern that they were seeking care for.

Strengths and limitations of the current study

The current research was limited in some ways. However, there were also a number of strengths. The following section will discuss these, specifically regarding the classification of SDM by the current study, the sample and measures used, and the benefits and challenges of using hypothetical scenarios. Broad limitations will also be discussed, regarding the stability of patient preferences over time and their ability to predict patient behaviour.

Although alternative classifications for SDM have been suggested and used by some within the SDM literature (e.g. Arora & McHorney, 2000; Auerbach & Pegg, 2002; Florin, Ehrenberg, & Ehnfors, 2008), the majority of studies, including the current research, support classifying SDM preferences according to two components; information sharing and behavioural involvement (Kiesler & Auerbach, 2006; Sutherland et al., 1989). Studies generally identify that these two factors play a central role in decision making within GP consultations. Yet, despite this support, few studies investigate these two components in terms of their associations with patients' personal characteristics. Instead, studies generally reported associations with patients' overall preferences for SDM, as one factor. The current study extends the SDM literature by shedding light on the possible associations between the two supported components of SDM and patient characteristics. Combining the current results with the results reported within previous research, it seems that patients' demographic and personality characteristics do share significant and, in some cases, distinct, relationships with their preferences for information sharing and behavioural involvement.

The current research updates previous research and extends upon it by including variables that had received little attention within the SDM literature; such as the Big Five and the features of the health concern that patients are seeking care for. The findings suggested that the components of the Big Five model, as measured four years previously, were unable to account for significant variance in participants' SDM preferences. This conflicted with other research that found that SDM preferences were associated with Big Five traits, when the latter were measured seven weeks previously (Auerbach & Pegg, 2002). However, these individuals were university students so it is possible that this may account for this difference in research findings. The current study also elucidated that chronic health complaints that were perceived to be highly serious were found to evoke significantly greater preferences for information sharing; an original research finding. Although these results require replication, this suggests that the health concern that patients are experiencing may significantly influence their willingness to exchange information.

The present study appears to be the first piece of research to explore SDM preferences within a New Zealand sample. The results demonstrate that preferences for SDM within this community sample are much the same as those found overseas, in student samples (Auerbach & Pegg, 2002; Pendleton & House, 1984; Rudell et al., 2006) and those with chronic health conditions (Arora & McHorney, 2000; Florin et al., 2008). Unlike other SDM research, the current study found that participant's age and sex were not significant in the regression analyses. As identified earlier in this discussion, this may be due to the sample being under represented by males and young participants. Female sex and younger age have been repeatedly demonstrated to associate with greater preferences for SDM, with age identified as the most important predictor

of SDM preferences (Heisler et al., 2002; Krupat, Bell, Kravitz, Thom, & Azari, 2001). It is possible that the restrictions of the sample used by this research may have limited the results. Further investigation revealed that young participants selectively dropped out during the course of the current study, whereas poor recruitment of males occurred in the initial phase of this study. Additionally, it must also be considered that the self-selected nature of participants may have also influenced the representativeness of the sample.

The final note regarding the limits of the sample used in the current research refers to the ethnicity of participants. The majority of participants identified themselves as New Zealand European, which may have influenced the research findings. Research in other countries has demonstrated that individuals who identify with a minority ethnicity had lower preferences for SDM than those who identified with the majority ethnicity (e.g. S.H.Kaplan et al., 1995; Moore et al., 2004). However, other authors found no such associations between ethnicity and patients' SDM preferences (e.g. Garfield et al., 2007). Due to limited data within the current study, this association was unable to be investigated. Future research should be aware of this as a potential confound.

The inclusion of hypothetical scenarios allowed the present study to consider the influence of that the patient's current health concern had on their preferences for SDM. It manipulated the duration of the health concern, as well as the patients' perceptions of the seriousness of the concern. This is an improvement from previous studies, which drew assumptions from the objective seriousness of the health concern that they described to participants (Ende et al., 1989; McKinstry, 2000; Sekimoto et al., 2004). The hypothetical

scenarios within the current study also manipulated the type of health concern participants were "experiencing". This enabled the current study to determine that the findings remained robust across different health concerns. SDM preferences did not fluctuate in accordance with the type of concern they read about for any of the analyses; either headaches or nausea. The only time when the type of concern was implicated within the results was in terms of the three-way interactions found within the between-subjects analyses. These interactions did not remain once participants' SDM preferences were accounted for, which suggested that they were not stable. The importance of using various health complaints within hypothetical scenarios has been highlighted within the literature, as significant discrepancies have been found in patient's SDM preferences across various concerns (Ende et al., 1989; McKinstry, 2000). Although studies that measure SDM preferences for specific health issues typically have used a number of health complaints, they often also described that these health issues had differing durations or degrees of seriousness from each other. This meant that the results of these studies were unable to separate the influence of the type of health concern from the features of that concern. The current study all three of these features of the health concern in every combination, thereby controlling for the effects of each.

The type of health complaints chosen for the hypothetical scenarios were headaches and nausea. These complaints were chosen as they needed to have familiar to most and share similar features across the sample. Gender-specific complaints, complaints that would be experienced differently across age groups, and complaints that were uncommon in particular age group may have produced results that reflected differences in age, familiarity and/or health knowledge within the sample, rather than genuine differences in participants' preferences for SDM.

Headaches and nausea were deemed to be the least problematic, given these criteria. However, it must be noted that some participants explicitly stated on their questionnaire that they would not seek GP care for these particular complaints. The current study attempted to control for this by informing participants had decided to seek care for the health concern within each scenario. However it is possible that participants' preferences for SDM in these consultations may not represent actual preferences for care, as they did not desire such care.

As noted earlier in this discussion, the measure of behavioural involvement within the hypothetical scenarios may have limited the findings of the current study. This measure contained only one item, measuring willingness to decide on treatment, which was measured on a shorter rating scale than other items. In hindsight, use of same rating scale across all items and inclusion of additional items that measured other forms of behavioural involvement practices would have aided this scale considerably.

Hypothetical scenarios, in general, have a number of disadvantages. Research notes that being presented with a hypothetical scenario is not the same as experiencing the health concern (McKinstry, 2000). This may be particularly so for written scenarios, as opposed to video vignettes, which provide greater realism as they give both verbal and non-verbal texture. Written scenarios usually manipulate a few salient facts, which may oversimplify the decision making process and leave out other influential variables, such as non-verbal communication and personal characteristics (Clark et al., 1991). As participants were exposed all four scenarios that differed in duration and seriousness, it is possible that the changes in these features may have facilitated them to respond as they did. Participants were not blind to these manipulations, although they

were blind to the type of health concern that was described; therefore it is possible that the results may reflect expectancy effects, rather than their true preferences in each circumstance

Participants' preferences recorded by hypothetical scenarios can also reflect only what participants think they would prefer in this specific situation. These preferences may not necessarily be identical those that they would actually have in that given situation. The findings of a study by Degner and Sloan (1992) clearly illustrate this discrepancy between perceptions and reality. They asked a public sample to report their preferences for SDM, assuming that they had recently received a diagnosis of breast cancer. Alongside this, they asked a sample of newly diagnosed breast cancer patients to rate their current preferences for SDM. The authors found that the public were poor at estimating their preferences for SDM given this circumstance, as their responses were significantly overestimations of the patient's preferences for SDM.

Wider limitations of the current study. It must be noted that the current study only investigates patients' preferences for SDM, and gives no attention to their subsequent behaviour. Research has found that there may be a number of ways in which patients may attempt to fulfil their preferences (Beisecker & Beisecker, 1990) and that patients do not always act in accordance with their preferences (Kiesler & Auerbach, 2006). Factors that have been found to influence patient behaviour in consultations include patient stress (Buetow, 1998), the doctor's personal characteristics and doctor behaviour (Benbassat et al., 1998) and the quality of the interaction between the patient and doctor (Nomura et al., 2007). Studies have indicated female GPs provide more SDM to patients than male GPs (Bertakis, 2009), that race-concordant dyads produced more participatory consultations (Cooper-Patrick et al., 1999) and that patients who had young doctors were more likely to ignore the doctor's advice, compared to those who had

older doctors (Hagihara & Tarumi, 2009). It must be considered that patient behaviour, such as assertiveness, may provoke certain behaviour from doctors, such as providing further justifications and reassurance (Street, 1991). In this way, patient and doctor behaviour are reciprocal within the consultation. Interestingly, studies indicate that doctors are not good at eliciting patients' SDM preferences (Robinson & Thomson, 2001). Two studies identified that patient and physicians' perceptions of an actual GP consultation were not correlated, and that patients' perceptions, and not physicians', were related to patient satisfaction (Hagihara & Tarumi, 2009; Jahng, Martin, Golin, & DiMatteo, 2005). Studies have noted that there may be limited agreement between patients and physicians decisions making preferences, with one study noting that agreement occurred in 38% of cancer cases (Bruera et al., 2001).This indicates that patients' preferences for SDM may not simple to determine and that doctors may need assistance in determining the level of collaboration that patients desire.

The complexity of determining patients' preferences is further compounded by their dynamic nature (Bruera et al., 2001). The current study measured participants' preferences at one point; where they were anticipating of an upcoming GP consultation. The research indicates that patient preferences may change throughout the process of the GP consultation, as well as across repeated consultations (Bruera et al., 2001; Butow et al., 1997). As recognised within the current study, the specific health concern that patients are seeking care for may influence their SDM preferences. In addition, studies have shown that SDM is becoming increasingly desired within the population (van den Brink-Muinen et al., 2006). However, little research has examined fluctuations in preferences within a typical GP consultation or for the same health concern across multiple visits.

Implications

Theoretical implications. The current research has a number of implications for the future research in this area. While the current research provides some interesting findings, these may be considered exploratory. Few studies have investigated patients' SDM preferences in terms of information sharing and behavioural involvement, as well as possible associations between patients' SDM preferences and patients' personality characteristics. Although the present research found that the components of the Big Five had little association with patients SDM preferences, other personality characteristics, such as patient optimism or health value, may share significant associations with patients' SDM preferences. Strong associations are often found between health variables and personality constructs, and since personality remains relatively stable over an individual's lifetime, it would be valuable to identify any such enduring relationships that occur with patient's SDM preferences (Wasylkiw & Fekken, 2002).

Additionally, the current study describes that patient preferences for SDM within a specific consultation may be similar to their general SDM preferences, particularly for behavioural involvement. However, information sharing preferences may differ when health complaints are chronic and perceived to be highly serious. This result highlighted that the specific features of the patient's health condition, and how the patient appraises these, may also associate with patients' specific SDM preferences. This is relatively new findings for this literature and needs to be corroborated. Investigation of different health complaints and other features of the health concern may also be warranted. Such consultation-specific components may account for variance in patient's specific preferences for SDM within any given consultation.

Practical implications. In terms of the practical implications of the current research, these findings have consequences for those seeking GP care, as well as those conducting it. The current research indicates that participants in the current study typically preferred to exchange information with their GP, but that their preferences for involvement in treatment varied. It seems that patients' preferences for information sharing and behavioural involvement are unlikely to be the same, with patients reporting lower preferences for behavioural involvement (Flynn et al., 2006). This may indicate that health professionals may need to spend a considerable amount of time determining the degree of involvement each patient would prefer within the consultation. Furthermore, research has indicated that doctors who provide care that is incongruent with patients preferences for SDM may result in care that is not patient-centred. Poor patient outcomes have been reported to occur in such incongruent consultations, including patient attempts to dominate or give-up within the consultation, as well as possible doctor-shopping behaviour (Street, 1991). Therefore, recognition and accommodation for the differing preferences of patients is necessary, as these preferences may vary from one patient to the next. Interventions that can assist doctor prediction of patient preferences, as well as patient education regarding involvement in GP consultations may help increase concordance within GP consultations.

The current research supports that GPs may estimate patient preferences for SDM by considering the features of the health concern that the patient is seeking care for, as well as their demographic and personality characteristics. Some of variables may harder to identify than others, for example, identifying patient age is likely to be simpler than identifying their HLOC beliefs. The features that made the strongest contribution to patients SDM preferences may be

the most useful in assisting them in providing concordant care. It must be noted that although only 40% of the variance in SDM preferences could be described by changes in these variables, the persistent application of such educated estimations may have a widespread impact on individuals over time (Conner-Smith & Flachsbart, 2007).

Future research directions

A number of avenues seem apparent for future research, regarding SDM preferences. Not only do the findings of the current study need to be corroborated, but differences in patients' preferences for SDM across other health complaints need to be explored. The current study only examined patients' SDM preferences for headaches and nausea, finding no differences between the two; however it is possible that differences occur between other types of health problems. This research may need to control for a number of confounding factors that occur for these health conditions, such as conditions that are more prevalent in particular sections of the community. With this in mind, it may also be important to address common complaints, as well as the more serious complaints, such as cancer.

Studies may find value in investigating what patients base their preferences for care on. Some reported that historical experiences with healthcare professional may influence future preferences for care; however, to my knowledge, this has not been formally explored. Another study also reported that although patients may report similar preferences for information exchange, they may value different types of information to be shared (Vick & Scott, 1998). Narrative analysis of consultations could investigate this issue further. It may also be interesting to investigate whether such differences could also be apparent for patients' willingness to be behaviourally involved. It may be that some patient, doctor or consultation-specific factors may

predict specific features of behavioural involvement, such as participation in treatment or final decision making.

Future research may also help by considering the current aging population. With the increasing trend, it is possible that the discrepancy between SDM preferences of the young and old may continue to grow. It is unclear how SDM preferences in our population may be effected in the future, with current studies reporting that greater preferences for SDM have occurred over time (Bruera et al., 2001). It would be unrealistic to expect that this trend would continue evermore, as a threshold for SDM preferences may be more likely to occur over time. This may be especially applicable to patients' preferences for information sharing, due to their already high desirability in the current population. It may also be of interest to examine factors that are associated with fluctuating preferences, within individuals, as well as across individuals. This may include cultural differences in SDM preferences, as inconsistent findings occur in the literature at present (S. H. Kaplan et al., 1995; Rudell et al., 2006)

Conclusion

The current research identified that patients' demographic characteristics and personality characteristics play a substantial role in determining their SDM preferences. Additionally, participants' appraisals of the health condition they were seeking care for were associated with their willingness to exchange information within that specific consultation. The key strengths of the current study include classifying patient preferences for SDM according to supported components, analyses that controlled for a number of confounding variables, and the use of variables that had received little attention within the literature, such as the Big Five and the features of the health concern. The findings of the current research highlight the multifaceted

nature of individuals' SDM preferences and complex relationships that these preferences have with patients' subsequent behaviour. For this reason, continued research in this field is critical, as they may provide a basis for estimating patients' preferences for SDM which may lead to concordant patient-doctor relationships and, therefore, optimised patient health outcomes.

Conference Presentations related to this thesis:

Bishop, A. & Kuijer, R. (2012, 9th Feb) *Associations between preferences for Shared Decision Making and Health Value.* Poster session presented at the annual conference of the Australasian Society of Behavioural Health and Medicine; Melbourne, Australia.

Bishop, A. & Kuijer, R. (2011, 10th Feb) *Patient preferences for Shared Decision Making: Associations with Demographic Variables, Personality Characteristics and Characteristics of the Health Complaint.* Oral presentation at the annual conference of the Australasian Society of Behavioural Health and Medicine; Christchurch, New Zealand.

Publications by this researcher:

Kuijer, R. G., Marshall, E. M., & Bishop, A. N. (submitted). Prospective Predictors of Adjustment after the Canterbury Earthquakes: Pretrauma Personality and Depression. *Psychological Trauma: Theory, Research, Practice and Polcy.*

McKinley, A, Bishop, A. & McLellan, T. (2011) Public knowledge of "concussion" and the different terminology used to communicate about mild traumatic brain injury (MTBI). *Brain Injury, 25* (7-8), 761-766.

McLellan, T, Bishop, A. & McKindley, A (2010) Community attitudes towards individuals with traumatic brain injury. *Journal of the International Neuropsychological Society, 16,* 705-710.

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APPENDIX A. Information Sheet of Questionnaire

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HEALTH and WELL–BEING STUDY

FOLLOW-UP QUESTIONNAIRE

Dear participant,

About a year and half ago you completed a second questionnaire for our Health and Well-being study. At the time you indicated that it would be okay for us to contact you again. We would like to ask you some further follow-up questions and hope that you are willing to participate. If so, please complete the questionnaire and send it back to us in the freepost envelope included (no stamp required).

The questionnaire consists of 7 sections:

1.	Background information	
2.	Health and well-being	- such as your views about your health and how you feel
3.	Health behaviours	- questions about your diet, exercise, smoking and weight
4.	Ending goals	- in this section we ask what you do when you cannot continue to pursue a goal
5.	Medical care	- such as how often you see your GP, how satisfied you are with your medical care and how much you like to be involved in your own care.
6.	Questions about being unwell	- questions about how you feel about being sick
7.	Preferences for involvement in specific consultations	- we provide some hypothetical scenarios and ask you to rate your preferences for involvement in each situation.

Participants who complete this questionnaire will either receive a $10 voucher (Westfield Mall or Petrol voucher) or may choose to go into a draw to win a $100 voucher (Westfield Mall). This questionnaire will take about 20 to 30 minutes to complete and participants may withdraw at any time.

Before completing the questionnaire please be sure to fill out the consent form on the back of this page.

This research is being completed by Alana Bishop at the University of Canterbury, for credit toward a Master of Science. She can be contacted by email at alana.bishop@pg.canterbury.ac.nz or by phone 03 364 2987, ext. 3406.The project has been reviewed and approved by the University of Canterbury Human Ethics Committee and is being supervised by Dr Roeline Kuijer. She can be contacted by email at roeline.kuijer@canterbury.ac.nz or by phone 03 364 2987, ext. 3401.

To ensure anonymity and confidentiality, your personal details contained on the consent form and on the last page of the questionnaire will be stored separately from the rest of your responses. Participants may request a copy of the general results of this study on the final page, which will also be published in a Master's thesis publicly available via the UC library database. Please note that no personal information which could identify you, or any other participants, will be disclosed in these results.

If you are concerned about health issues or if you would like advice regarding your health behaviours after completing this questionnaire, we suggest that you contact your GP, or phone Healthline (0800 611 116) or Quitline (0800 778 778) for advice.

Your participation is very much appreciated.

Yours sincerely,
Alana Bishop and Dr Roeline Kuijer

APPENDIX B. Measures Within Current Study

Measures used at the three time points of the current study are reported below. Time-points highlighted indicate the variables used within the current analyses.

Age	Time 1, 2 & **3**
Sex	Time 1, 2 & **3**
Highest qualification	Time 1, 2 & **3**
Employment	Time 1, 2 & **3**
Household income	Time 1, 2 & **3**

Short-form health survey (Jenkinson et al., 1997; Ware et al., 1996)	Time 1, 2 & **3**
Chronic health conditions	Time 1, 2 & **3**
General SDM preferences measure (items shown in Table 4.)	Time **3**
Health locus of control (K. A. Wallston et al., 1978)	Time **3**
Big Five personality (John & Srivastava, 1999; Soto & John, 2008)	Time **1**
Hypothetical scenarios	Time **3**

(scenarios shown in Figure 1, items shown in Table 8, full versions in Appendix C)

For copyright reasons these questionnaires were not included in the thesis. The exceptions to this were the measure of general SDM preferences and the hypothetical scenarios, which are included in the named sections.

APPENDIX C. Scenario Wording and Order

In total, there were eight different versions of the scenarios, reported within the questionnaires:

- four versions referring to headaches
- four versions referring to nausea

Questionnaires differed in the order that scenarios were presented. Table 27 reports the differing order of scenarios and the version of the scenario they occurred in. These details applied to both the headache and the nausea questionnaires.

Table 27. *Differing Order of Scenarios for Headache and Nausea Questionnaires*

	First Scenario	*Second Scenario*	*Third Scenario*	*Fourth Scenario*
Version 1	Acute, Low Seriousness	Chronic Low Seriousness	Acute High Seriousness	Chronic, High Seriousness
Version 2	Chronic Low Seriousness	Acute High Seriousness	Chronic, High Seriousness	Acute, Low Seriousness
Version 3	Acute High Seriousness	Chronic, High Seriousness	Acute, Low Seriousness	Chronic, Low Seriousness
Version 4	Chronic, High Seriousness	Acute, Low Seriousness	Chronic, Low Seriousness	Acute High Seriousness

After each scenario, participants rated their preferences for SDM for that specific concern. Part 8 of the questionnaire, which describes the scenarios and records participants' specific SDM preferences is given on the following pages, for Version 1 of the headache questionnaire and nausea questionnaire.

Versions were recorded in the top right hand corner of the first page the questionnaire, by the participants' ID number. These were indicated in by a letter and a number, with H1-4 representing the four versions of the headache questionnaires, and N1-4 representing the nausea questionnaires.

Version 1 of Hypothetical Scenarios Describing Headaches

In this section, four medical problems or scenarios are described, which involve "headaches". Each scenario is followed by some questions about what you would prefer if you were about to seek advice for each specific problem.

Scenario 1.

Imagine that you have developed a painful headache that has lasted **for two days.** You feel that it **isn't a particularly serious** health problem, however it is disrupting your daily life and you have found that Panadol does not provide you with any relief.

You have decided to see your doctor about it.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your headache should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

Now consider the next scenario:

Scenario 2.

Imagine that the painful headache above had **been persistent** for over a month**,** but that, as before, you feel it **isn't a particularly serious** health problem.

Your efforts to treat the headache with Panadol have not been effective and you decide to see your doctor about it, as it is affecting your daily life.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your headache should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

The next scenario is similar to the earlier scenarios, but note the important differences:

Scenario 3.

Imagine that you have been experiencing a painful headache that had lasted for **two days**. However, the symptoms make you feel that this headache **is a very serious** health problem.

Because your efforts to treat it have been ineffective and because it is disrupting your daily life, you decide to see your doctor.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your headache should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

And finally the last scenario:

Scenario 4.

Consider that you have been experiencing a painful headache that has **been persistent** for over a month. As before, the extent of the symptoms indicate that this **is a very serious** health problem.

Your efforts to treat the headache with Panadol have not been effective and you decide to see your doctor about it, as it is affecting your daily life.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information ▼ **Lots of Information** ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice ▼ **Lots of Choice** ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions ▼ **Lots of Questions** ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your headache should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

Version 1 of Hypothetical Scenarios Describing Nausea

In this section, four medical problems or scenarios are described, which involve "nausea".
Each scenario is followed by some questions about what you would prefer if you were about to seek advice for each specific problem.

Scenario 1.

Imagine that you have been experiencing nausea that has lasted **for two days.** You feel that it **isn't a particularly serious** health problem, however it is disrupting your daily life and you have found that over-the-counter anti-nausea treatments have not provided you with any relief.

You have decided to see your doctor about it.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your nausea should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

Now consider the next scenario:

Scenario 2.

Imagine that the nausea above had **been persistent** for over a month**,** but that, as before, you feel it **isn't a particularly serious** health problem.

Your efforts to treat the nausea have not been effective and you decide to see your doctor about it, as it is affecting your daily life.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your nausea should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

The next scenario is similar to the earlier scenarios, but note the important differences:

Scenario 3.

Imagine that you have been experiencing nausea which has lasted for **two days**. However, the symptoms make you feel that this **is a very serious** health problem.

Because your efforts to treat it have been ineffective and because it is disrupting your daily life, you decide to see your doctor.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your nausea should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

And finally the last scenario:

Scenario 4.

Consider that you have been experiencing nausea that has **been persistent** for over a month. As before, the symptoms indicate that this **is a very serious** health problem.

Your efforts to treat the nausea have not been effective and you decide to see your doctor about it, as it is affecting your daily life.

Please answer the following, specifically regarding this situation

1. On a scale from 1 to 10, how much information would you want from your doctor, regarding this problem?

No Information **Lots of Information**

▼ ▼

1 2 3 4 5 6 7 8 9 10

2. On a scale from 1 to 10, how much choice would you like regarding the treatment options in this situation?

No Choice **Lots of Choice**

▼ ▼

1 2 3 4 5 6 7 8 9 10

3. Who should determine what gets talked about during the consultation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

4. On a scale from 1 to 10, to what extent would you like to ask questions in this consultation?

No Questions **Lots of Questions**

▼ ▼

1 2 3 4 5 6 7 8 9 10

5. Who should determine how your nausea should be treated, in this situation?

The doctor alone	Mostly the doctor	Both the doctor and I, equally	Mostly me	Me alone
O	O	O	O	O

APPENDIX D. Time 1 Ethics Approval

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HEC Ref: 2007/11

21 March 2007

Dr Roeline Kuijer
Psychology
UNIVERSITY OF CANTERBURY

Dear Roeline

The Human Ethics Committee advises that your research proposal "Health and well-being study" has been considered and approved.

Yours sincerely

pp. Wendy

Dr Alison Loveridge
Chair, Human Ethics Committee

APPENDIX E. Time 3 Ethics Approval

Ref: HEC 2010/92

19 July 2010

Alana Bishop
Department of Psychology
UNIVERSITY OF CANTERBURY

Dear Alana

The Human Ethics Committee advises that your research proposal "Patient preferences: associations with demographic variables, personality characteristics and characteristics of the health condition" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 16 July 2010.

Best wishes for your project.

Yours sincerely

Dr Michael Grimshaw
Chair, Human Ethics Committee